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GREATER TORONTO AREA 3Rs ANALYSIS
SOCIAL ENVIRONMENT TECHNICAL
APPENDIX - SCHEDULES A - G

DRAFT - NOVEMBER 1993



**Ministry of
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SOCIAL ENVIRONMENT TECHNICAL APPENDIX SCHEDULES A - G

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for
Fiscal Planning and Information Management Branch
Ministry of Environment and Energy

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**GTA 3Rs ANALYSIS
SOCIAL ENVIRONMENT TECHNICAL APPENDIX**

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SCHEDULE A

System Net Effects Tables

TABLE A1.1
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin, litter and noise associated with composting facility, MRF and depots. Effects dependant on operation, type of facility, type of material and sensitivity of receptor.</p> <p>Health concerns associated with centralized windrow facility will be minimized by education and consultation.</p>	<p>Minor nuisance effect on residents, community features, businesses and communities associated with composting facility, MRF and depots and illegal dumping.</p> <p>Health concerns associated with centralized windrow facility will be minimized by education and consultation.</p> <p>Elderly and physically challenged may have difficult time setting out material for pick-up.</p> <p>Minor increase in costs for some landlords.</p> <p>Nuisance effect particularly stigma/image and disruption effects related to odour, health concerns at composting facility and illegal dumping. If the effects are severe, the facility will risk closure.</p>	<p><u>Advantages</u></p> <p>No new facilities are required.</p> <p>Potential effects are due to increased use of existing facilities.</p> <p><u>Disadvantages</u></p> <p>Potential for nuisance effects on residents, community features, businesses and communities and health concerns for some people from existing facilities.</p> <p>Effects likely less significant than systems 4-6.</p>
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p> <p>Nuisance effects from composting facilities dependant on composting operation, type of facility, type of compostable material and sensitivity of receptor.</p> <p>Landlords incur higher costs for removal of white goods.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> Minor traffic inconvenience in communities where materials are sorted during pick up of recyclables. Nuisance effect particularly stigma and disruption effects related to odour and health concerns are likely at composting facility. If the effects are severe, the facility will risk closure. May be minimized by proper management including use of state-of-the-art odour control. Minor negative effect on community image from illegal dumping may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres. 		
Potential effects on community features	<ul style="list-style-type: none"> Minor nuisance effects on community features and businesses at some facilities, may be minimized by proper management at existing and new facilities to reduce nuisance effects. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, and promote personal and/or community pride. Greater awareness of white goods and HHW may change purchasing habits/attitudes and foster greater acceptance of using repaired/used items.</p>	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride. Potential for change in purchasing habits/attitudes and greater acceptance of using repaired/used items.</p> <p>Potential for short term increase in low skill jobs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential small increase in positive social and lifestyle changes. Potential for minor short term increase in low skill employment and minor increase in economic development. Long term net employment and economic development effects uncertain. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change and for employment and economic development in the short or long term.
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclables and leaf and yard waste and increase in quantities and types of materials recycled, manufacture/distribution of composters, program administration and management, and construction/expansion of facilities.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p>	<p>Net long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection of manufacture and distribution of composites, construction industry and services. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude and direction is uncertain.</p>	<p>Potential direct economic benefits. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude and direction is uncertain.</p> <p>In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods in response to a need for residents to find ways to remove used white goods.</p>	
Potential operational effects on institutions, commercial enterprises and industry	<p>In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods in response to a need for residents to find ways to remove used white goods.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution effect on some local communities, population groups and industries located near to a composting facility as they may be affected by nuisance effects while other residents served by the facility are not affected.</p> <p>Positive effect from reuse centres for lower income groups as more lower cost items available.</p>	<p>Negative distribution effect on some local communities, population groups and industries and on lifestyle of residents located near to a composting facility as they may be affected by nuisance effects while other residents served by the facility are not affected.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive effect with increase in lower cost used items available to lower income groups. Least inconvenience to residents if diligent participation assumed for all residents. Least negative distribution effects as no new facilities are required. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential negative distribution of effects from facilities on residents, household types, and groups living near the facilities. Least positive effect on future generations.
Distribution of lifestyle effects	<p>Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting for multi-family.</p>	<p>Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting.</p> <p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse and reducing.</p> <p>Current generation pays the costs for changing to more sustainable behaviour.</p>	
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pay the costs for changing to more sustainable behaviour in paying for, expansion of community recycling centres and depots.</p>		

TABLE A1.2
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> Minor nuisance effects; traffic, odour, scavenging animals, birds, vermin, and noise, associated with composting facility, MRF, and depots. Possible displacement of residents for the location of a new facility should be minimized by site selection process. Health concerns associated with centralized windrow facilities will be minimized by education and consultation. 	<ul style="list-style-type: none"> Possible displacement of residents, community features and businesses from siting new facilities. Health concerns associated with centralized windrow facilities will be minimized by education and consultation. Minor nuisance effect on residents, community features, businesses and communities associated with composting facility, MRF and depots and illegal dumping. Elderly and physically challenged may have difficult time setting out material for pick-up. Employees at MRFs and in particular compost facilities may be exposed to health and safety hazards. Negative effect on community image/stigma due to odour problems and possibly health concerns at composting facilities and illegal dumping 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Few new facilities are required. Potential effects are due to increased use of existing facilities and few new facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential displacement of residents, community features and businesses from siting new facilities. Potential for nuisance effects on residents, community features, businesses and communities and health concerns for some people from existing facilities. Potential effects are likely less significant than systems 4-6.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up. Nuisance effects from composting facilities dependant on composting operation, type of facility, type of compostable material and sensitivity of residents. Landlords incur higher costs for removal of white goods. Employees at MRFs and in particular compost facilities may be exposed to health and safety hazards. 		
Potential effects on communities	<ul style="list-style-type: none"> Minor traffic inconvenience in communities where materials are sorted during pick up of recyclables. Negative effect on community image/stigma due to odour problems and possibly health concerns at composting facilities and illegal dumping. May be minimized by proper siting considerations of facility and proper management of the material including use of state-of-the-art odour control, and through development of incentives for people to donate useful large items to charitable organizations or reuse centres. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and business	<p>Possible displacement of community features and businesses from location of new composting facility or expansion of community recycling centre.</p> <p>Minor nuisance effects on community features and businesses at some facilities, maybe be minimized by proper siting considerations of new facilities and proper management at existing and new facilities to reduce nuisance effects.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> Positive social and lifestyle effect from all 3Rs, by encouraging people to do and learn more, and promote personal and/or community pride. Greater awareness of white goods disposal issues and HHW may change purchasing habits/attitudes and /foster greater acceptance of using repaired/used items. Reuse centres could contribute to acceptance of used goods. Promotional/education could encourage extensive 3Rs participation. 	<ul style="list-style-type: none"> Potential positive social and lifestyle effect and increase in personal and/or community pride, and greater acceptance of using repaired/used items. Could promote a shift in purchasing attitudes. Potential minor short-term increase in low skill and construction sector employment. Long term employment effects uncertain. Potential direct economic benefits. Magnitude of effect is uncertain. Potential for a minor economic benefit in the construction sector. Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude and direction is uncertain. In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential small increase in positive social and lifestyle changes. Potential for minor short term increase in low skill employment and minor increase in economic development. Long term employment and economic development effects uncertain. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change and for employment and economic development in the short or long term. Slightly less convenient for residents than system 1.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclables and leaf and yard waste and increase in quantities and types of materials recycled, manufacture/distribution of composters, program administration and management of facility.</p> <p>Minor short-term increase in construction sector employment is probable for construction of composting facility and expansion of recycling centre.</p> <p>Long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p>		
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters. Magnitude of effect is uncertain.</p> <p>Potential for a minor economic benefit in the construction sector.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude and direction is uncertain.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods in response to a need for residents to find ways to remove used white goods.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution effect on some local communities, population groups and industries located near to a composting facility and depots as they may be affected by nuisance effects while other residents served by the facility are not affected.</p> <p>Reuse centres are likely to have a positive effect for lower income groups, making available lower cost items and adds potential market for their goods.</p>	<p>Negative distribution effect on some local communities, population groups and industries and on lifestyle of residents located near to a composting facility as they may be affected by nuisance effects which other residents served by the facility are not affected.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available.</p> <p>Minor lifestyle distribution effect between multi-family and low density residents in lack of access to composting.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive effect with increase in lower cost used items available to lower income groups. Second least positive effect on future generations. Less inconvenience to residents then user pay, expanded blue box, wet/dry and mixed waste processing. Slightly greater inconvenience than existing system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential negative distribution of effects from facilities on residents, and groups living near the facilities.
Distribution of lifestyle effects	Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting.	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pays the costs for changing to more sustainable behaviour.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pay the costs for changing to more sustainable behaviour in paying for MRF, expansion of community recycling centres and depot.</p>		

TABLE A1.3
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential/Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin, and noise associated with composting facility, MRF and depots. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Possible displacement of residents for the location of a new facility should be minimized by site selection process.</p> <p>Health concerns associated with centralized open windrow facilities, will be minimized by education and consultation. Could be mitigated by proper design and control.</p> <p>Possible stigma for neighbourhood from facilities.</p>	<p>Possible displacement of residents and community features and businesses from location and/or facilities.</p> <p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin and noise on residents and community features and businesses. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential health concerns for residents, special/sensitive groups and employees at MRF's and composting facilities. Magnitude will be minimized by proper design, control, planning, consultation and education.</p> <p>Identify and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No major new facilities are required beyond existing/committed; therefore there is less potential for displacement and disruption of residents, community features and businesses and disruption of quality of life near facilities. Effects related to increased use of existing facilities. Possible increase in community pride, as people are encouraged to do and learn more. Greater awareness of white goods and HHW management and may change purchasing habits/ attitudes. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for odour effects, health concerns and other nuisance effects from existing facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p> <p>Minor nuisance effects from composting facilities dependent on composting operation, management, type of facility, type of compostable material and sensitivity of receptor. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Landlords incur higher costs for removal of white goods.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards.</p>		<p><u>Disadvantages</u></p> <p>Potential for effects from illegal dumping and burning.</p> <p>Potential effects are likely less significant than systems 4-6.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<p>Minor traffic inconvenience in communities where materials are sorted at the truck during pick up of recyclables.</p> <p>Potential stigma effect on community due to potential nuisance effects from facilities.</p> <p>Minor negative effect on community image from illegal dumping of white goods may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres.</p> <p>Possible increase in community pride from participation in promotion/education programs.</p> <p>Potential for illegal dumping/burning as resistance to direct cost. Could be minimized by variable rates schemes, enforcement, expanded 3Rs, etc.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Possible displacement of community features and businesses from location of new composting facility or expansion of community recycling centre.</p> <p>Minor nuisance effects on community features and businesses at some facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities to reduce nuisance effects.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on Community features and Businesses.</p> <p>Health concerns associated with centralized open windrow facilities, will be minimized by design, planning, consultation and education.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. Greater awareness of white goods and HHW management and may change purchasing habits/attitudes and foster greater acceptance of using repair/used items and lead to lifestyle change.</p> <p>Could lead to a greater "contamination" of recyclables as residents maximize use of 3Rs.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc..</p> <p>A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi, etc.).</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups (e.g. elderly) unable to participate and are affected by nuisances.</p> <p>Greater awareness of white goods and HHW management may lead to a change in purchasing.</p> <p>In long term businesses may develop programs to "buy back" used white goods. May increase the costs of white goods.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects include both short and long term changes in secondary and tertiary employment. Magnitude of effect is uncertain.</p> <p>Minor short term increase in construction sector employment is probable because of need for more facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should increase greater awareness of 3Rs and encourage sustainable lifestyle and households to separate and practice recycling and composting. Potentially increase community pride and cohesion through reuse activities. Greater costs for disposal of white goods will encourage people to send bulky items to reuse centres. Development of a reuse Market for used goods increase the availability of reusable goods. Some potential additional employment and economic development in the short and long term. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Probable increase in illegal dumping and incineration by households, particularly in rural areas. Potentially less convenient than systems 1 or 2.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclables and leaf and yard waste and increase in quantities and types of materials recycled.</p> <p>manufacture/distribution of composters, program administration and management, and construction/expansion of facilities. Magnitude of effect is uncertain.</p> <p>Small reduction in low skill jobs with garbage collection reduction.</p> <p>Long term employment effects uncertain in Durham. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. Magnitude of effect is uncertain.</p> <p>Minor short-term increase in construction sector employment is possible because of need for more facilities.</p>	<p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude of effect is uncertain.</p> <p>Potential for a minor short term economic benefit in the construction sector.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection of manufacture and distribution of composites, construction industry and services. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes; magnitude and direction is uncertain.</p> <p>Recycling in all multi-family buildings will increase the supply of recyclable materials and lead to improved economics of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Minor direct economic benefits in printing, production and distribution of promotional/educational materials.</p> <p>Potential for a minor short term economic benefit in the construction sector.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods in response to a need for residents to find ways to remove used white goods.</p> <p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MKI's and composting facility as they may be affected by nuisance effects which other residents served by the facility are not affected. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Positive social distribution effect is likely because direct cost is targeted to all types of residences.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p> <p>Direct cost has a positive distribution effect between rural and urban residents. Those living in housing types that receive municipal waste management services will pay for service, as do those who live in housing type that have private service. Urban residents will bear direct cost of waste management as rural residents similarly do.</p>	<p>Direct cost will have a positive distribution effect as urban and rural residents will bear direct cost of waste management. There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p> <p>Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future.</p> <p>Reuse activities have some positive social welfare benefits.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items will be available.</p> <p>Expanding 3Rs programs to various type of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Lower income families should benefit financially from an increase in the availability of reusable goods through reuse centres. Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. Potentially more equitable distribution of 3Rs services between housing types than systems 1 and 2, but less than systems 4 and 5. Least negative distribution effects as no new facilities are required. Application to multi-family and rural areas uncertain. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative effect on large families households as they will generate more garbage. Increased costs with direct cost will be a burden on lower income families.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)	Positive distribution effect due to equitable service.		
Potential future generation effects of system	<p>Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pay the costs for changing to more sustainable behaviour in paying for MRF, expansion of community recycling centres and depot.</p>		

TABLE A1.4
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Durham Region

SYSTEM

: Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible displacement of residents for the location of a new composting facility and possibly a new MRF.</p> <p>Should be minimized by site selection process.</p> <p>Health concerns associated with centralized open windrow facilities will be minimized by education and consultation. Could be mitigated by proper design and control.</p> <p>Minor nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with composting facilities, new or expanded MRF's and depots. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Possible stigma for neighbourhood from facilities.</p>	<p>Possible displacement of residents, community features and businesses from location of new or expanded composting and MRF facilities.</p> <p>Minor nuisance effects on residents, special & sensitive groups and community features and businesses. Potential health concerns for residents, special & sensitive groups and employees at MRF and composting facilities.</p> <p>Identity and physically challenged may have difficult time setting out recyclables and compostable material for pick-up.</p>	<p><u>Advantages</u></p> <p>Few additional facilities required (possibly only expansion of existing composting and MRF facility).</p> <p>Fewer people, features and businesses are likely to be affected with this system than with wet/dry or mixed solid waste.</p> <p>Possible increase in community pride as people are encouraged to do and learn more.</p> <p>Does not depend on central composting.</p> <p>Potential effects are less likely significant than systems 5 and 6, but more than systems 1-3.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p> <p>Minor nuisance effects from composting facilities dependant on type of facility, type of compostable material and sensitivity of receptor. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Landlords incur higher costs for removal of white goods.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude may be minimized by proper siting consideration of new facilities and proper management.</p>		<p><u>Disadvantages</u></p> <p>Possible displacement and disruption of some resident community features and businesses from location of additional composting facility, expansion of community recycling centre and new or expansion of existing MRF.</p> <p>Potential for odour effects, health concerns and other nuisance effects from existing facilities.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> Minor traffic inconvenience in communities where materials are sorted at the truck during pick up of recyclables. Potential stigma effect on community. Minor negative effect on community image from illegal dumping may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres. Possible increase in community pride from participation in 3Rs and promotion/education programs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Possible displacement of community features and businesses from location of new composting facility or expansion of community recycling centre.</p> <p>Minor nuisance effects of odour and health concerns on community features and businesses at some facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities to reduce nuisance effects.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Minor nuisance effect associated with image.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. Greater awareness of white goods and HHW management may change purchasing habits/attitudes and foster greater acceptance of using repaired/used items and lead to lifestyle change.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>A number of minor lifestyle effects associated with backyard, vermin-, and multi-family composters (odours, vermin, etc.).</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups unable to participate and are affected by nuisances.</p> <p>Greater awareness of white goods and HHW management may lead to a change in purchasing.</p> <p>In long term businesses may develop programs to "buy back" used white goods.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects include both short and long term changes in secondary and tertiary employment.</p>	<p><u>Advantages</u></p> <p>Potential increase in awareness of 3Rs and households source separating and practising recycling and composting due to familiarity with system.</p> <p>Potential increase in community pride and cohesion through reuse activities.</p> <p>Potential increase in employment and economic development but magnitude uncertain. Expansion of materials collected may stimulate new recycling industries, but this advantage may be an economic disadvantage for industries based on virgin material production.</p> <p>Potential to increase, but not maximize lifestyle change.</p> <p><u>Disadvantages</u></p> <p>Potential for a variety of lifestyle inconveniences/effects. Greater inconvenience than existing, existing/committed, direct cost.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclables and leaf and yard waste and increase in quantities and types of materials recycled, manufacture/distribution of composters, program administration and management, and construction/expansion of facilities. Magnitude of effects uncertain</p> <p>Small reduction in low skill jobs with garbage collection reduction.</p> <p>Long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. Magnitude of effects is uncertain.</p> <p>Minor short-term increase in construction sector is likely because of need for municipalities.</p>	<p>Minor short term increase in construction sector employment is probable because of need for more facilities.</p> <p>Direct economic benefits are possible in 3Rs related industries. The expanded number of materials collected may have significant effects by stimulating new recycling industries and decreasing demand for some virgin materials. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products.</p> <p>Potential for a minor short term economic benefit in the construction sector.</p> <p>Possible increase in community pride as people are encouraged to do and learn more.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, construction industry and services. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes; magnitude and direction is uncertain.</p> <p>Recycling in all multi-family buildings and expansion of Blue Box will increase the supply of recyclable material and lead to improved economies of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Minor direct economic benefits in printing, production and distribution of promotional and educational materials.</p> <p>Potential for a minor direct economic benefit in the construction sector.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods in response to a need for residents to find ways to remove used white goods.</p> <p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be limited by providing a variety of options for waste management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRT's and composting facilities as they may be affected by nuisance effects which other residents served by the facility are not affected. Magnitude may be minimized by proper siting consideration of new facilities and proper management.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p>	<p>Current generation pays cost for changing to a more sustainable behaviour, results in positive future generational effect.</p> <p>Reuse activities have some positive social welfare benefits.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items will be available.</p> <p>Expanding 3Rs programs to various types of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Current generation taking greater responsibility for managing its waste generation and division problem. Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. System can apply to all types of residence. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities. Less significant than wet/dry and mixed waste processing systems. Second least negative distribution effects due to facilities, effects greater than systems 1-3, but less than systems 5 and 6.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)	Positive social distribution effect is likely because Expanded Blue Box is targeted to all types of residences.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<ul style="list-style-type: none"> Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse. Current generation pay the costs for changing to more sustainable behaviour in paying for MRF, expansion of community recycling centres and depot. 		

TABLE A1.5
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : DURHAM REGION

SYSTEM : WET/DRY

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> Potential for health (odour) & nuisance (visual, traffic, noise, stigma) effects from MRF's, depots and composting facilities. These effects may be more extensive in a wet/dry system than existing facilities. Minor potential for illegal dumping and burning on private property. Potential displacement of residents due to MRF facility and composting facility construction or expansion. 	<ul style="list-style-type: none"> Potential displacement of residents, community features and businesses. Health effects on employees at MRF's and on people with allergies and immuno-deficiencies. Elderly and disabled groups are likely to experience difficulties in using wet/dry bins. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential health effects on employees and on people with allergies and immuno-deficiencies at composting facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential displacement and disruption of residents, community features and businesses and disruption of community due to siting new MRF and composting facilities.
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly & disabled groups are likely to experience significant difficulties in using and cleaning the wet/dry bins (approx. 10% of population). Some landlords are likely to bear the cost of illegal white good disposal. Employees at MRF's and in particular compost facilities may be subjected to a variety of health and safety hazards such as HHW and sharps in "wet" stream. Potential for health effects (odours) on allergy sufferers, people with immuno-deficiencies, etc. from composting facilities. 	<ul style="list-style-type: none"> Potential nuisance effects from MRF's, depots and composting facilities. 	<ul style="list-style-type: none"> Potential health effects on employees and on people with allergies and immuno-deficiencies at composting facilities. Potential difficulties for elderly and disabled in using wet/dry bins. The system depends on central composting.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> Small increase in traffic problems is expected due to additional collection vehicles. Potential for community stigma because of facilities and possibility of illegal dumping. Increase in community pride is possible because of increased participation. 		
Potential effects on community features and businesses	<ul style="list-style-type: none"> Potential for health (odour) & nuisance (visual, traffic, noise, stigma) effects from MRFs, depots and composting facilities. These effects may be more extensive in a wet/dry system than existing facilities. Minor traffic nuisance effects are expected because of higher number of collection vehicles are needed for wet/dry. Potential displacement of community features and businesses due to MRF facility and composting sites construction and expansion. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> A number of minor lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents are associated with the wet/dry bins. A positive social and lifestyle effect is expected from participation in various aspects of 3Rs. May encourage a change in purchasing attitudes of HHW and white goods. Reuse centres could contribute to acceptance of reused goods. Reuse activities could encourage neighbourhood/community cohesiveness through participation. Promotion/education could encourage extensive 3Rs participation. 	<ul style="list-style-type: none"> Positive social and lifestyle effects may contribute to an acceptance of reused goods and encourage a change in purchasing attitudes of HHW and white goods. Direct employment and economic gains related to 3Rs activities and industries. Increases in low skill jobs are mostly likely. Over long term potential development of marketable "green" systems, technologies and products. (Magnitude uncertain) Potential lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents associated with the wet/dry bins. May affect participation. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive social and lifestyle effects uncertain as residents learn the operation of the system and realize the potential for higher waste diversion. (Assumes they continue to source separate.) Potential for direct employment and economic gains in the short term related to 3Rs activities and industries. Increases in low skill jobs are mostly likely. Over long term potential for the development of some marketable "green" systems, technologies and products as a greater supply of materials should be available. (Magnitude uncertain) <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments.
Potential effect on employment	<ul style="list-style-type: none"> Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects could include both short and long-term changes in secondary and tertiary employment. Minor short-term increase in construction sector employment is probable because of need for more facilities. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in 3Rs related industries. Indirect economic effects could include both short and long-term changes in secondary and tertiary sectors. Over the long-term, this could lead to the development of marketable "green" systems, technologies and products. Potential for a minor economic benefit in the construction sector. 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential negative lifestyle effects/inconveniences for all residents. Inconvenience are greater than for existing, existing committed, direct cost and expanded blue box. Potential inconveniences for elderly and disabled with wet/dry bins.
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. Effects uncertain with material banning legislation. Potential for enterprises to develop "buy back" used white goods. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Some communities, population groups, and industries are likely to bear disproportionate nuisance effects (odour, litter, traffic, etc.) from composting facilities and MRT's.</p> <p>Reuse centres are likely to have a positive effect for low income groups making available low cost items and adds potential market for their goods.</p>	<p>Potential positive social distribution effect as wet/dry is targeted to all types of residences. However, some communities, population groups and industries will bear disproportionate nuisance effects from MRT's and composting.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive social distribution effect as wet/dry is targeted to all types of residences. Potential positive effect for future generations because of highest volume of waste diverted, more sustainable use of resources, conservation of the environment for future use/enjoyment. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Some communities and population groups will bear disproportionate nuisance effects from MRT's and composting.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)	<p>Potential for minor difference in convenience with wet/dry system between high-density and low-density residents.</p> <p>Positive social distribution effect is likely because wet/dry is targeted to all types of residences.</p>		
Potential future generation effects of system	<p>Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment.</p>		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Most significant negative distribution effects due to facilities. May reduce emphasis on source separation if managing the diverted material and bins are difficult; may not reinforce shift to 3R's.

TABLE A1.6
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Durham Region

SYSTEM

: Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with existing and committed facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for significant odour effect from Mixed Waste Processing and composting (MWPC) facility. Virtually all plants in the US have significant odour problems that have led to their closing. Mitigation measures may have only a limited effect.</p> <p>Possible displacement of residents for the location of a new facility may be minimized by site selection process.</p> <p>Health concerns associated with centralized open windrow facilities may be minimized by education and consultation.</p>	<p>Minor nuisance effect on residents, communities, special/sensitive groups, community features from facilities.</p> <p>Potential significant odour effect from MWPC facility.</p> <p>Possible displacement of residents and community features and businesses from location of new facilities.</p> <p>Stigma and disruption effects related to potential health concerns for residents and special/sensitive groups and for employees at MWPC facility.</p> <p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p> <p>Reuse activities have some increased appeal and household economic benefits.</p>	<p><u>Advantages</u></p> <p>Possible increase in community pride as people are encouraged to do and learn more. This could be a disadvantage if there are significant negative effects from the MWPC facility.</p> <p><u>Disadvantages</u></p> <p>Potential displacement and disruption of residents, community features and businesses from the MWPC facility.</p> <p>Potential significant odour effect from MWPC facility.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Potential effects on special/sensitive groups</p>	<ul style="list-style-type: none"> Potential for significant nuisance and health (odour) effect from Mixed Waste Processing and Composting facility on allergy sufferers, people with immuno deficiencies, etc. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Employees at and compost facilities may be subjected to a variety of health and safety hazards. Possibility of significant effects on employees at facility. Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up. Minor nuisance effects from existing/committed facilities. Landlords incur higher costs for removal of white goods. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<p>Potential for community stigma effect from presence of composting and MWP facilities.</p> <p>Minor traffic inconvenience in communities where materials are sorted at the truck during pick up of recyclables.</p> <p>Minor negative effect on community image from illegal dumping of white goods may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres.</p> <p>Possible increase in community pride from promotion/education programs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Potential for significant odour effect from Mixed Waste Processing facility on people at community features. Mitigation measures may have only a limited effect.</p> <p>Possible displacement of community features and businesses from location of new composting facility, expansion of community recycling centre and construction of MWP facility.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses.</p> <p>Minor nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with existing and committed facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<p>Generally, a positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. However, the mixed waste processing component may have a negative effect because some people may not perceive a need for source separation. It may lead to counter-productive attitudes.</p> <p>Greater awareness of white goods and HHW management and may change purchasing habits/attitudes and foster greater acceptance of using repair/used items and lead to lifestyle change.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>A number of minor lifestyle inconveniences associated with composters (backyard, vermin and multi-family).</p>	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride. May have a negative effect if people do not source separate.</p> <p>In long term businesses may develop programs to "buy back" used white goods.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects include both short and long term changes in secondary and tertiary employment. Magnitude of effect is uncertain.</p> <p>Minor short term increase in construction sector employment is probable because of need for more facilities.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude of effect is uncertain.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential to reduce household source separation in the long term, reduce emphasis on individuals' role in 3Rs. Should substantially increase the amount of materials recovered, therefore improving economies of scale for many recycling industries. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for economic development and employment may be reduced by greater contamination of the recyclable. Unlikely to maximize positive lifestyle change.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclable, leaf and yard waste, manufacture and distribution of composters, program administration and management. Magnitude of effect is uncertain.</p> <p>Small reduction in low skill jobs with garbage collection reduction.</p> <p>Long term employment effects uncertain in Durham. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. Magnitude of effect is uncertain.</p> <p>Minor short-term increase in construction sector employment.</p>	<p>Potential for a minor short term economic benefit in the construction sector.</p> <p>Increased amount of materials from mixed waste processing will lead to improved economies of scale for recycling industries.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composites, construction industry and services. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes; magnitude and direction is uncertain.</p> <p>Recycling in all multi-family buildings and mixed waste processing will increase the supply of recyclable materials and lead to improved economics of scale which should provide better support for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Minor direct economic benefits in printing, production and distribution of promotional/educational materials.</p> <p>Potential for a minor short term economic benefit in the construction sector.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods in response to a need for residents to find ways to remove used white goods.</p> <p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits Distribution of socio-economic effects on industry and population groups	<p>Negative lifestyle and quality of life distribution effect on some local communities, population groups and industries located near MRFs and composting facility. Very negative distribution effect is likely with the operation of a MWPC facility.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHHW collection in some municipalities.</p>	<p>Positive effect from reuse centres for lower income groups as more low cost items will be available.</p> <p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MWPC facility.</p> <p>Positive social distribution effects likely because system is targeted to all types of residences.</p> <p>Minor effect in different level of service for white goods and HHHW collection in some municipalities.</p> <p>Minor effect with greater support for product stewardship where white goods and HHHW collection not offered.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Current generation pays cost for reclaiming useful materials from the waste stream and diverts a high volume of waste, results in positive effect for the future. Positive social distribution effects likely because system is targeted to all types of residences. Largest increase in the amount of materials recovered from recycling should lead to greatest reduction in the use of virgin resources for manufacturing. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near a MWPC facility. Greatest negative potential effect on future generations due to the potential for residents to reduce or stop separating material; it is a change to a less sustainable behaviour. Most significant negative distribution effects due to facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects	Positive social distribution effect is likely because this system is targeted to all types of residences.		
Potential future generation effects of system	<p>Positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pays cost for reclaiming useful materials from the waste stream, results in positive effect for the future.</p> <p>Significant potential negative effect from the reduction in emphasis on individual behaviour and source separation; may result in a shift back to a less sustainable behaviour in the long term.</p>		

TABLE A2.1
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect such as traffic, litter and noise associated with MRFs and depots. Effects dependant on operation, type of facility, type of material, sensitivity and number of people near the facility</p> <p>Significant odour effects, health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with centralized composting facilities.</p>	<p>Minor nuisance effect on residents, community features, businesses and communities associated with MRFs, depots, traffic and illegal dumping.</p> <p>Odour and health concerns associated with centralized composting facilities.</p> <p>Potential stigma effect on neighbourhoods and communities due to nuisance effects from the facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities are required. Effects are due to increased use of existing facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Nuisance effects and health concerns for residents, community features, businesses and communities.
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have a difficult time setting out recyclable and compostable material for pick-up, and using drop-off facilities.</p> <p>Effects from composting facilities dependant on composting operation, type of facility, type of compostable material, sensitivity and number of people near the facility.</p> <p>Employees at MRFs and compost facilities are subjected to a variety of potential health and safety hazards.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> Potential stigma effect on community due to nuisance effects from the facilities. Minor negative effect on community image from illegal dumping. Community pride from participation. 		
Potential effects on community features and businesses	<ul style="list-style-type: none"> Minor nuisance effects on community features and businesses with compost facilities, MRFs and depots. Odour effects, health concerns and minor nuisance effects associated with centralized composting facilities. Potential stigma effect on community features and businesses due to nuisance effects from facilities. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> Positive social and lifestyle effect, by encouraging people to do and learn more, and promote personal and/or community pride. Greater awareness of white goods may be changing purchasing habits/attitudes. This and reuse centres may be fostering greater acceptance of using repaired/used items. Minor lifestyle inconveniences associated with backyard composters. 	<ul style="list-style-type: none"> Positive social and lifestyle effect and personal and/or community pride. May be changing purchasing habits/attitudes and increasing acceptance of using repaired/used items. Possible increase in low skill jobs. Potential direct economic benefits. Net long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude, timing and direction is uncertain. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Minor positive social and lifestyle effects. Least inconvenience to residents. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change. Unlikely to lead to significant improvement in supply of materials to green industries. Limited additional employment and economic development in the short or long term.
Potential effect on employment	<ul style="list-style-type: none"> Minor direct employment gains primarily in low skill jobs in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction of effect is uncertain. Net long term employment effects uncertain. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Minor direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composites, construction industry and services. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude, timing and direction is uncertain.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Minor positive effect through support of recycling.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution effect on some local communities, population groups and industries located near composting facilities and MRFs as they may be affected by nuisance effects while other residents served by the facility are unaffected.</p> <p>Minor distribution effect from provision of different levels of service for white goods and HHW collection in some municipalities.</p> <p>Positive effect from reuse centres for lower income groups as more lower cost items available.</p>	<p>Negative distribution effect on some local communities, population groups and industries and on lifestyle of residents located near composting facilities and MRFs as they may be affected by nuisance effects while other residents served by the facility are unaffected.</p> <p>Positive effect from reuse centres for lower income groups as more lower cost items available.</p> <p>Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting.</p> <p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Least negative distribution of effects from facilities on residents, and groups living near the facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Least positive effect on future generations. Least potential for lifestyle change. Least positive distribution effect of 3Rs services and infrastructure. Few opportunities for multi-family residences.
Distribution of lifestyle effects	<p>Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting and recycling for multifamily.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for facilities and infrastructure.</p>		

TABLE A2.2
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effects such as traffic, litter, and noise, associated with MRI's and depots. Effects dependent on operation, type of material, sensitivity and number of people near the facility.</p> <p>Possible displacement of residents for the location of new facilities should be minimized by site selection process.</p> <p>Potential odour and health concerns, and minor nuisance effects such as traffic, litter, birds, vermin and noise, associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p>	<p>Potential odour and health concerns, and minor nuisance effects with centralized composting facilities.</p> <p>Possible displacement of residents, community features and businesses from siting new facilities.</p> <p>Minor nuisance effect for residents, community features, businesses and communities associated with MRI's, depots and illegal dumping.</p> <p>Employees at MRI's and in particular compost facilities may be exposed to health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Possible stigma effect on neighbourhoods and communities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Some new facilities are required. Potential effects are due to increased use of existing and new facilities. Possible increase in community pride, as people are encouraged to do and learn more. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential displacement of residents, community features and businesses from siting new facilities. Potential for nuisance effects on residents, community features, businesses and communities and health concerns for some people from facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and using drop-off facilities. Nuisance effects from composting facilities dependant on composting operation, type of facility, type of compostable material and sensitivity of residents. Employees at MRFs and in particular compost facilities may be exposed to health and safety hazards. Should be minimized by education. Could be mitigated by proper design and control. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management. 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential effects are likely less significant than systems 5 and 6, but more than system 1.
Potential effects on communities	<ul style="list-style-type: none"> Traffic inconveniences will increase due to expanded facilities. Potential stigma effect on community due to nuisance effects from the facilities. Possible increase in community pride from participation. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Possible displacement of community features and businesses from location of new MRFs and composting facility.</p> <p>Minor nuisance effects on community features and businesses at some facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma affect on community features and businesses due to nuisance effects from the facilities.</p> <p>Odour effects and health concerns associated with centralized composting facilities, may be reduced by proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<ul style="list-style-type: none"> Positive social and lifestyle effect from all 3Rs, by encouraging people to do and learn more, and promote personal and/or community pride. Multi-family/ high rise will now feel included in a positive initiative. Greater awareness of white goods management may change purchasing habits/attitudes. Reuse centres could add to existing acceptance of used goods. Promotion/education could encourage extensive 3Rs participation. Reuse activities have some social welfare benefits. Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and action (e.g. communal garage sales, flea markets, bazaars, etc.) A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi-, etc.) and multi-family recycling. 	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride including multi-family.</p> <p>Potential minor short-term increase in low skill and construction sector employment.</p> <p>Long term employment effects uncertain.</p> <p>Potential direct economic benefits.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sectors; cost-savings from a reduction in landfill fees due to reduced volumes; magnitude timing and direction is uncertain.</p> <p>Potential for a minor economic benefit in the construction sector. In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods.</p> <p>Potential increase in costs for multi-family building owners, managers and tenants.</p> <p>Increased opportunities for recycling should increase the quantity of recyclables and lead to improved economies of scale for recycling industries.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential small increase in positive social and lifestyle changes. Potential for minor short term increase in low skill employment and minor increase in economic development. Long term employment and economic development effects uncertain. Less inconvenience to residents than direct cost, expanded blue box, wet/dry and mixed waste processing. Slightly greater inconvenience than existing system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change and for employment and economic development in the short or long term.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p> <p>Minor short-term increase in construction sector employment is probable for construction of composting facility and one or two additional MRFs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, printing, production and promotion of manufacture and distribution of composters. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect (secondary and tertiary) economic effects could occur; magnitude, timing and direction is uncertain.</p> <p>Potential for a minor economic benefit in the construction sector.</p> <p>Recycling in multi-family buildings will increase the supply of recyclable materials and lead to improved economies of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants; landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be mitigated by providing a variety of options for waste management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution effect on some local communities, population groups and industries located near composting facilities, MRT's and depots as they may be affected by nuisance effects while other residents served by the facility are unaffected.</p> <p>Reuse centres are likely to have a positive effect for lower income groups, making available lower cost items and increasing potential market for their goods.</p> <p>Minor effect in different level of service for white goods and HHTW collection in some municipalities.</p>	<p>Negative distribution effect on some local communities, population groups and industries on lifestyle of residents located near composting facilities as they may be affected by nuisance effects which other residents served by the facility are unaffected.</p> <p>Positive effect by incorporating high rise households.</p> <p>Positive effect from reuse centres for lower income groups as more lower cost items available /resaleable.</p>	<p><u>Advantages</u></p> <p>Second least negative distribution of effects from facilities on residents, household types, and groups living near the facilities.</p> <p><u>Disadvantages</u></p> <p>Second least positive effect on future generations.</p>
Distribution of lifestyle effects	<p>Positive lifestyle effect by increased distribution of service for multi-family households</p>	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p>	
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for facilities and infrastructure.</p>	<p>Current generation pays the costs for changing to more sustainable behaviour.</p>	

TABLE A2.3
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, litter and noise associated with MRI's and depots. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential odour and health concerns, and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p> <p>Possible displacement of residents for the location of one or two MRI's, composting facility and possibly depot facilities; should be minimized by site selection process.</p>	<p>Possible displacement of residents and community features and businesses from siting new facilities.</p> <p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin and noise on residents and community features and businesses. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential health concerns for residents, special/sensitive groups and employees at MRI's and composting facilities.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Possible stigma effect on communities and neighbourhoods.</p>	<p><u>Advantages</u></p> <p>No major new facilities are required beyond existing/committed; therefore there is less potential for displacement and disruption of residents, community features and businesses and disruption of quality of life near facilities than with MWP or Wet/Dry.</p> <p><u>Disadvantages</u></p> <p>Potential nuisance effects on residents, community features, businesses and communities and health concern for some people from existing facilities.</p> <p>Possible displacement of some residents' community features and business from location of additional composting facility and new MRI's.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclables and compostable material for pick-up and using drop-off facilities.</p> <p>Effects from composting facilities dependant on composting operation, management, type of facility, type of compostable material, sensitivity and number of people near the facility. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards, will be minimized by education. Could be mitigated by proper design and control.</p>		<p><u>Disadvantages</u></p> <p>Potential effects from illegal dumping/burning by residents.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<p>Traffic inconveniences will increase due to the additional facilities and increase in materials transported.</p> <p>Potential stigma effect on community due to potential nuisance effects from the facilities.</p> <p>Possible increase in community pride from participation.</p> <p>Potential for illegal dumping/burning as resistance to direct cost. Could be minimized by variable rates schemes, enforcement, expanded 3Rs, etc.</p>		
Potential effects on community features	<p>Possible displacement of community features and businesses for location of composting facility and MRFs.</p> <p>Minor nuisance effects on community features and businesses at MRFs, facilities and depots facilities; may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses.</p> <p>Odour effects and health concerns associated with centralized composting facilities; may be reduced by proper management. Net effects uncertain.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<ul style="list-style-type: none"> Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. Reuse centres may foster greater acceptance of using repair/used items and lead to lifestyle change. Reuse activities have some social welfare benefits. Increased appeal and household economic benefits can contribute to neighbourhood cohesiveness and action (e.g. communal garage sales, flea markets, bazaars etc.) Greater awareness of white goods management may change purchasing habits/attitudes. Could lead to a greater "contamination" of recyclable as residents maximize use of 3Rs to avoid paying for garbage. A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi, etc.) and recycling in high rises (e.g., noise). 	<ul style="list-style-type: none"> Potential for a variety of lifestyle inconveniences and effects. Some resident groups (e.g. elderly) unable to participate and are affected by nuisances. Greater awareness of white goods management may lead to a change in purchasing. Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (Secondary and tertiary) effects could occur; magnitude, timing and direction is uncertain. Short term increase in construction sector employment is probable because of need for more facilities. Potential increase in costs for tenants because of implementation of 3Rs system in multi-family dwellings. Should increase volume of recyclables and improve economies of scale. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should increase greater awareness of 3Rs and encourage households to separate and practice recycling and composting. Should increase volume of materials and improve economies of scale and employment for recycling industries. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Probable increase in illegal dumping and incineration by households. Potential increase in costs and inconvenience to tenants of multi-family buildings.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction of effect is uncertain.</p> <p>Long term employment effects uncertain in Metro. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. Magnitude, timing and direction of effect is uncertain.</p> <p>Short-term increase in construction sector employment is probable for construction of composting facility, MRT's, and depots.</p>	<p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects (secondary and tertiary) could occur. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude, timing and direction of effect is uncertain.</p> <p>Potential for a short term economic and employment benefit in the construction sector.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, and promotion and distribution. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes; magnitude timing and direction is uncertain.</p> <p>Recycling in multi-family buildings with direct cost will increase the supply of recyclable materials and lead to improved economies of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a short term economic benefit in the construction sector.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be limited by mitigated a variety of options for waste management. If a building currently has municipal collection service, direct cost system may encourage landlords and tenants to become more active.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRIs, depots and composting facilities as they may be affected by nuisance effects which other residents served by the facility are not. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p> <p>There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p>	<p>There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p> <p>Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future.</p> <p>Reuse activities have some positive social welfare benefits.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items will be available.</p> <p>Expanding 3Rs programs to various type of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from facilities.</p>	<p><u>Advantages</u></p> <p>Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy.</p> <p>Current generation is taking greater responsibility for managing its waste generation and division problem.</p> <p><u>Disadvantages</u></p> <p>Increased costs for on large households as they will generate more garbage.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities.</p> <p>Less significant than Wet/Dry and Mixed Waste Processing Systems.</p> <p>Application to multi-family household uncertain.</p>
<p>Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)</p>	<p>Positive lifestyle distribution effect by increased opportunities of service for multi-family residents.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<ul style="list-style-type: none">Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse.Current generation bears the costs in paying for facilities and infrastructure.		

TABLE A2.4
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible displacement of residents for the location of new composting facility, and one or two MRFs. Should be minimized by site selection process.</p> <p>Nuisance effects such as traffic, litter and noise associated with MRFs and depots. Effects dependent on operation, type of material, sensitivity and number of people near the facility.</p> <p>Potential odour and health concerns, and minor nuisance effects, such as traffic, litter, birds, vermin and noise, associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p>	<p>Possible displacement of residents, community features and businesses from location of composting facility and MRFs.</p> <p>Minor nuisance effects for residents, special & sensitive groups and community features and businesses.</p> <p>Potential odour and health concerns, and minor nuisance effects, associated with centralized composting facilities.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p>	<p><u>Advantages</u></p> <p>No major new facilities are required beyond existing/committed; therefore there is less potential for displacement and disruption of residents, community features and businesses near facilities than with mixed solid waste and wet/dry.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and using drop-off facilities.</p> <p>Effects from composting facilities dependant on composting operation, management, type of facility, type of compostable material, sensitivity and number of people near the facility. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards. Will be minimized by education. Could be mitigated by proper design and control.</p>		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Possible displacement and disruption of some residents, community features and businesses from location of additional composting facility and MRFs. Potential nuisance effects on residents, community features, businesses and communities and health concerns for some people from existing facilities, but likely less significant than systems 5 and 6.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> Traffic inconveniences will increase with the additional facilities and increases in materials transported.. Potential stigma effect on community. Minor negative effect on community image from illegal dumping may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres. Possible increase in community pride from participation. 		
Potential effects on community features	<ul style="list-style-type: none"> Possible displacement of community features and businesses for location of new composting facility and MRF's. Minor nuisance effects on community features and businesses at MRF's, compost facilities, and depots may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities to reduce nuisance effects. Possible nuisance effects on community features and businesses from traffic and hauling. Odour effects and health concerns associated with centralized composting facilities may be reduced by proper management. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. Greater awareness of white goods management may change purchasing habits/attitudes.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits with future demographic changes can contribute to neighbourhood cohesiveness and action (e.g. communal garage sales, flea markets, bazaars etc.)</p> <p>A number of minor lifestyle effects associated with backyard, vermi-, and multi-family composters (odours, vermin, etc.) and with recycling in multi-family buildings.</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups unable to participate and are affected by nuisances.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects (secondary and tertiary) could occur. Magnitude, timing, and direction of effect is uncertain.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude, timing and direction of effect is uncertain.</p>	<p><u>Advantages</u></p> <p>Potential increase in employment and economic development but magnitude uncertain. Expansion of materials collected may stimulate new recycling industries, but this advantage may be an economic disadvantage for industries based on virgin material production.</p> <p>Potential for residents to participate more effectively in source separation than other systems due to familiarity.</p> <p><u>Disadvantages</u></p> <p>Potential for a variety of lifestyle inconveniences/effects. Greater inconvenience than existing, existing/committed, direct cost.</p> <p>Potential increase in costs to tenants of multi-family buildings.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Long term employment gains in 3Rs related industries may be dependent on Metro capturing new markets with expanded Blue Box items.</p> <p>Short term increase in construction sector employment is probable because of a need for more facilities.</p>	<p>Potential for a minor short term economic and employment benefit/increase in the construction sector.</p> <p>Possible increase in community pride as people are encouraged to do and learn more.</p> <p>Potential increase in costs for tenants because of implementation of 3Rs systems in multi-family buildings.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, printing and promotion, construction industry and services. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes. Magnitude, timing and direction is uncertain.</p> <p>Recycling in all multi-family buildings and expansion of Blue Box will increase the supply of recyclable material and lead to improved economies of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a short term economic benefit in the construction sector.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be mitigated by providing a variety of options for waste management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRFs, depots and composting facilities as they may be affected by nuisance effects while other residents served by the facility are unaffected. Magnitude of effect may be minimized by proper siting consideration of new facilities and proper management.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p>	<p>Current generation bears the cost for changing to a more sustainable behaviour, results in positive future generational effect.</p> <p>Reuse activities have some positive social welfare benefits.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items will be available.</p> <p>Expanding 3Rs programs to various types of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Current generation taking greater responsibility for managing its waste generation and diversion problem. Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. System can apply to all types of residences. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities. Less significant than wet/dry and mixed waste processing systems.
Distribution of lifestyle effects	Positive lifestyle distribution effect by increased opportunities of service for multi-family residents.		
Potential future generation effects of system	<p>Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for facilities and infrastructure.</p>		

TABLE A2.5
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Metro Toronto

SYSTEM

: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Potential for odour effects, health and safety concerns and minor nuisance effects such as traffic, litter, visual, birds, vermin and noise from MRF's, depots and composting facilities. These effects may be more extensive in a wet/dry system than with existing facilities. As well, the high density of Metro may lead to a greater number of people being affected.</p> <p>Potential displacement of residents due to location of MRF's and composting facility.</p>	<p>Potential displacement of residents, community features and businesses from composting facility and MRF's.</p> <p>Health and safety effects on employees at MRF's and on people with allergies and immunodeficiencies.</p> <p>Potential nuisance effects from MRF's, depots and composting facilities.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Possible stigma effect on neighbourhoods and communities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities required. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> The system depends on central composting. Potential health, disruption and displacement effects on employees and on people with allergies and immunodeficiencies at composting facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly & disabled groups are likely to experience significant difficulties in using and cleaning the wet/dry bins (a higher proportion in Metro than in other regions) and in the use of drop-off facilities. Employees at MRFs and in particular compost facilities may be subjected to a variety of health and safety hazards such as HHW and sharps in "wet" stream. Hazards should be minimized by consultation and education and mitigated by proper design and control. Potential for health effects (odours) on allergy sufferers, people with immuno-deficiencies, etc. from composting facilities. Nuisance effects from composting facilities dependent on composting operation, management, type of facility, type of compostable material, sensitivity and number of people near facility. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management. 		
Potential effects on communities	<ul style="list-style-type: none"> Traffic inconveniences are expected due to the wet/dry collection system, and increase in materials being transported. Potential for community stigma because of facilities. Increase in community pride is possible. Minor negative effect on community image from illegal dumping may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<ul style="list-style-type: none">Potential for odour effects, health concerns and minor nuisance effects such as traffic, litter, visual, birds, vermin and noise from MRFs, depots and composting facilities. These effects may be more extensive in a wet/dry system than existing facilities.Possible displacement of community features and businesses due to MRF and composting facility construction and expansion.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> A number of lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents are associated with the wet/dry bins. These effects may be more extensive in high-density areas with the 3-bin system. A positive social and lifestyle effect is expected from participation in various aspects of 3Rs. May encourage a change in purchasing attitudes of white goods. Reuse centres could contribute to acceptance of reused goods. Reuse activities could encourage neighbourhood/community cohesiveness through participation. Promotion/education could encourage extensive 3Rs participation. Increased appeal and household economic benefits with future demographic changes can contribute to neighbourhood cohesiveness and action (e.g. communal garage sales, flea markets, bazaars, etc.) 	<ul style="list-style-type: none"> Positive social and lifestyle effects may contribute to an acceptance of reused goods and encourage a change in purchasing attitudes of white goods. Direct employment and economic gains related to 3Rs activities and industries. Increases in low skill jobs are mostly likely. Over long term potential development of marketable "green" systems, technologies and products. Magnitude, timing and direction is uncertain. Will increase amount of recyclable materials and lead to improved economies of scale. Potential lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents associated with the wet/dry bins. May affect participation. Potential difficulties for elderly, disabled and other groups in using wet/dry bins. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for effects on lifestyle are uncertain as opportunity is available to put waste material in the garbage. Potential to increase the amount of recyclable materials and improved economies of scale and reduce contamination. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. Potential negative lifestyle effects inconveniences for all residents. Inconveniences are greater than for existing, existing committed, direct cost and expanded blue box. Potential difficulties for elderly, disabled and other groups in using wet/dry bins.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<ul style="list-style-type: none"> Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Short-term increase in construction sector employment is probable because of need for more facilities. 		
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in 3Rs related industries. Indirect economic effects could include both short and long-term changes in secondary and tertiary sectors. Over the long-term, this could lead to the development of marketable "green" systems, technologies and products. Potential for a minor economic benefit in the construction sector. Wet/Dry and multi-family collection will increase amount of recyclable materials and lead to improved economies of scale. Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors. 		
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Some communities, population groups, and industries are likely to bear disproportionate nuisance effects (odour, litter, traffic, etc.) from composting facilities and MRFs.</p> <p>Reuse centres are likely to have a positive effect for low income groups making available low cost items and adds potential market for their goods.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p>	<p>Potential positive social distribution effect as wet/dry is targeted to all types of residences. However, some communities, population groups and industries will bear disproportionate nuisance effects from MRFs composting facilities and depots.</p> <p>Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment may be off-set due to potential reduction in 3Rs behaviour by individuals.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive social distribution effect as wet/dry is targeted to all types of residences. Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment may be off-set due to potential reduction in 3Rs behaviour by individuals. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> May reduce emphasis on source separation if managing the diverted material and bins are difficult; may not reinforce shift to 3Rs. Some communities and population groups will bear disproportionate nuisance effects from MRFs and composting facilities.
Distribution of lifestyle effects	<p>Positive lifestyle distribution effect by increased opportunities of service for multi-family households.</p> <p>Potential for minor difference in convenience with wet/dry system between high-density and low-density residents.</p>	<p>Reuse activities have some social welfare benefits.</p>	
Potential future generation effects of system	<p>Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for, expansion of facilities and infrastructure.</p>		

TABLE A2.6
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Nuisance effect from traffic, litter and noise associated with existing and committed facilities. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for significant odour effect from Mixed Waste Processing facility. Virtually all plants in the US have significant odour problems that have led to their permanent or temporary closure. May be difficult to site in Metro due to high density. Mitigation measures may have only a limited effect.</p> <p>Possible displacement of residents for the location of a new MWP facility may be minimized by site selection process.</p>	<p>Minor nuisance effect on residents, communities, special/sensitive groups, and community features from facilities.</p> <p>Potential significant odour effect from MWP facility.</p> <p>Possible displacement of residents and community features and businesses from location of new facilities.</p> <p>Stigma and disruption effects related to potential health concerns for residents and special/sensitive groups and for employees at MWP facility.</p> <p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p> <p>Reuse activities have some increased appeal and household economic benefits.</p>	<p><u>Advantages</u></p> <p>Potential displacement and disruption of residents, community features and businesses from the MWP facility.</p> <p>Potential significant odour and health effects from MWP facility.</p> <p><u>Disadvantages</u></p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Potential for significant nuisance and health effect from Mixed Waste Processing facility on allergy sufferers, people with immuno deficiencies, etc. Potential for health effects on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Employees at MWP and compost facilities may be subjected to a variety of health and safety hazards. Possibility of significant effects on employees at MWP facility. Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off facilities. Nuisance effects from existing/committed facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Potential stigma effect on community. Traffic inconveniences will increase with the additional facilities and increase in materials transported. Possible increase in community pride. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Potential for significant odour effect from Mixed Waste Processing facility on people at community features. Mitigation measures may have only a limited effect.</p> <p>Possible displacement of community features and businesses from location of new composting facility and construction of MWP facility.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses.</p> <p>Nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with existing and committed facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Generally, a positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. However, the mixed waste processing component may have a negative effect because some people may not perceive a need for source separation. It may lead to counter-productive attitudes.</p> <p>Greater awareness of white goods management may change purchasing habits/attitudes.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and action (eg. communal garage sales, flea markets, bazaars etc.)</p> <p>A number of minor lifestyle inconveniences associated with composters (backyard, vermin and multi-family) and with recycling in multi-family buildings.</p>	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride. May have a negative effect if people do not source separate.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects (secondary and tertiary) could occur. Magnitude, timing, and direction of effect is uncertain.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude of effect is uncertain.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should substantially increase the amount of materials recovered, therefore improving economies of scale for many recycling industries. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential to reduce household source separation in the long term, reduce emphasis on individuals' role in 3Rs and contamination. Potential for economic development and employment may be reduced by greater contamination of recyclables.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Long term employment gains in 3Rs related industries may be dependent on government and business identifying markets for Metro.</p> <p>Short term increase in construction sector employment is probable because of a need for more facilities.</p>	<p>Potential for a minor short term economic and employment benefit/increase in the construction sector.</p> <p>Increased amount of materials from mixed waste processing will lead to improved economies of scale for recycling industries.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are likely in recycling industries, collection services, manufacture and distribution of composters, printing and promotion and in construction industry and services. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sections, and cost-savings from a reduction in landfill fees due to reduced volumes. Magnitude, timing and direction is uncertain.</p> <p>Recycling in all multi-family buildings and mixed waste processing will increase the supply of recyclable materials and lead to improved economics of scale which should provide better support for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a significant short term economic benefit in the construction sector. Effect may be mitigated by providing a variety of options for waste management.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate 3Rs programs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative lifestyle and quality of life distribution effect on some local communities, population groups and industries located near composting facility. Very negative distribution effect is likely with the operation of a MWP facility.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p>	<p>Positive effect from reuse centres for lower income groups as more low cost items will be available, greater resale market and has positive social welfare benefits.</p> <p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MWPC facility.</p> <p>Positive social distribution effects likely because system is targeted to all types of residences.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p> <p>Minor effect with greater support for product stewardship where white goods and HHW collection not offered.</p> <p>Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive effect as current generation pays cost for reclaiming largest amount of useful materials from the waste stream, results in greatest potential reduction in the use of virgin resources for manufacturing. Positive social distribution effects likely because system is targeted to all types of residences. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near a MWP facility. Greatest negative potential effect on future generations due to the potential for residents to reduce or stop separating material; it is a change to a less sustainable behaviour.
Distribution of lifestyle effects	Positive lifestyle distribution effect by increased opportunities of service for multi-family households.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<p>Positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the cost for reclaiming useful materials from the waste stream, results in positive effect for the future.</p> <p>Significant potential negative effect from the reduction in emphasis on individual behaviour and source separation; may result in a shift back to a less sustainable behaviour in the long term.</p>		

TABLE A3.1
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin, litter and noise associated with composting facility, MRF and depots. Effects dependant on operation, type of facility, type of material and sensitivity of receptor.</p> <p>Health concerns associated with centralized windrow facility will be minimized by education and consultation.</p>	<p>Minor nuisance effect on residents, community features, businesses and communities associated with composting facility, MRF and depots and illegal dumping.</p> <p>Health concerns associated with centralized windrow facility will be minimized by education and consultation.</p> <p>Elderly and physically challenged may have difficult time setting out material for pick-up and using drop off facilities and transfer stations.</p> <p>Potential stigma effect on neighbourhoods and communities due to nuisance effects from the facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities are required. Potential effects are due to increased use of existing facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for nuisance effects on residents, community features, businesses and communities and health concerns for some people from existing facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up, and use of drop-off facilities and transfer stations.</p> <p>Nuisance effects from composting facilities dependant on composting operation, type of facility, type of compostable material and sensitivity of receptor.</p> <p>Employees at MRFs and compost facilities are subjected to a variety of health and safety hazards. Will be minimized by education/ consultation. Could be mitigated by proper design and control.</p>		
Potential effects on communities	<p>Minor traffic inconvenience in communities where materials are sorted during pick up of recyclables.</p> <p>Potential stigma effect on community due to nuisance effects from the facilities.</p> <p>Community pride from participation in promotion/ education programs.</p>		
Potential effects on community features	<p>Minor nuisance effects on community features and businesses at some facilities, may be minimized by proper management at existing facilities.</p> <p>Health concerns associated with centralized open window facilities may be minimized by proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, and promote personal and/or community pride. Greater awareness of HHW may change purchasing habits/attitudes.</p> <p>Lifestyle inconvenience associated with backyard composters.</p> <p>Reuse centres could contribute to acceptance of reused goods.</p> <p>Reuse activities could encourage neighbourhood/community cohesiveness through participation.</p>	<p>Positive social and lifestyle effect and personal and/or community pride. Possible change in purchasing habits/attitudes and greater acceptance of using repaired/used items.</p> <p>Possible increase in low skill jobs.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p> <p>Potential direct economic benefits.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Minor positive social and lifestyle effects. Most convenient system (with system 2). <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change. Unlikely to lead to significant improvement in economies of scale for recyclables and employment development in short or long term.
<p>Potential effect on employment</p>	<p>Minor direct employment gains primarily in low skill jobs in all aspects of municipal waste management and in private sector 3Rs related industries.</p> <p>Indirect effects include both short and long term changes in secondary and tertiary employment. Magnitude of effect is uncertain.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p>	<p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude and direction is uncertain.</p> <p>Magnitude of effect is uncertain.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, construction industry and services. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude and direction is uncertain.</p>		
Potential operational effects on institutions, commercial enterprises and industry	No significant operational effects or changes.		
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution effect on some local communities, population groups and industries located near a composting facility as they may be affected by nuisance effects while other residents served by the facility are not.</p> <p>Positive effect from reuse centres for lower income groups as more lower cost items available.</p>	<p>Negative distribution effect on some local communities, population groups and industries and on lifestyle of residents located near a composting facility as they may be affected by nuisance effects while other residents served by the facility are not.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive effect with increase in lower cost used items available to lower income groups. Least inconvenience to residents. Least negative distribution effects as no new facilities are required.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects	<ul style="list-style-type: none"> Minor lifestyle distribution effect because multi-family and rural residents have fewer opportunities for composting. Rural residents have greater effect on their lifestyle than urban residents because they are required to self haul recyclables and garbage. 	<ul style="list-style-type: none"> Positive effect from reuse centres for lower income groups as more lower cost items available. Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting. Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse. Current generation pays the costs for changing to more sustainable behaviour. 	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative distribution of effects from facilities on residents, and groups living near the facilities, and households not provided with the same 3Rs opportunities. Least positive effect on future generations.
Potential future generation effects of system	<ul style="list-style-type: none"> Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse. Current generation pay the costs for changing to more sustainable behaviour in paying for expansion of community recycling centres and depots. 		

TABLE A3.2
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> Minor nuisance effects; traffic, odour, litter, scavenging animals, birds, vermin, and noise, associated with composting facility, MRF, and depots. Possible displacement of residents for the location of new facilities should be minimized by site selection process. Health concerns associated with centralized windrow facilities will be minimized by education and consultation. Possible stigma for neighbourhood from facilities. 	<p>Possible displacement of residents, community features and businesses from siting new facilities.</p> <p>Health concerns associated with centralized windrow facilities will be minimized by education and consultation.</p> <p>Minor nuisance effect on residents, community features, businesses and communities associated with composting facility. MRF's, depots and illegal dumping.</p> <p>Elderly and physically challenged may have difficult time setting out material for pick-up and using drop-off facilities and transfer stations.</p> <p>Employees at MRF's and in particular compost facilities may be exposed to health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Some new facilities are required. Potential effects are due to increased use of existing and new facilities. Possible increase in community pride, as people are encouraged to do and learn more. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential displacement of residents, community features and businesses from siting new and expanding existing facilities, one new centralized composting facility, one new MRF, community recycling centres and mini-recycling depots and drop-off facilities. Potential for nuisance effects on residents, community features, businesses and communities and health concerns for some people from existing facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off centres and transfer stations. Nuisance effects from composting facilities dependant on composting operation, type of facility, type of compostable material and sensitivity of residents. Employees at MRFs and in particular compost facilities may be exposed to health and safety hazards. Could be mitigated by proper design and control. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management. 		<u>Disadvantages</u> Potential effect likely less significant than systems 5 and 6.
Potential effects on communities	<ul style="list-style-type: none"> Minor traffic inconvenience in communities where materials are sorted during pick up of recyclables. Potential stigma effect on community due to nuisance effects from the facilities. Possible increase in community pride from participation in promotion/education programs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and business	<p>Possible displacement of community features and businesses from location of new MRFs,composting facility and community recycling centres.</p> <p>Minor nuisance effects on community features and businesses at some facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses due to nuisance effects from the facilities.</p> <p>Health concerns associated with centralized open windrow facilities, will be minimized by design, planning, consultation and education.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> Positive social and lifestyle effect from all 3Rs, by encouraging people to do and learn more, and promote personal and/or community pride. Multi-family/high rise will now feel included in this positive initiative. Greater awareness of large goods HHW may change purchasing habits/attitudes. New Reuse centres could add to existing acceptance of used goods. Promotional/education could encourage extensive 3Rs participation. Reuse activities have some social welfare benefits. Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars, etc. A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi, etc.) 	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride including multi-family.</p> <p>Potential minor short-term increase in low skill and construction sector employment.</p> <p>Long term employment effects uncertain.</p> <p>Potential direct economic benefits.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sectors; cost-savings from a reduction in landfill fees due to reduced volumes; magnitude timing and direction is uncertain.</p> <p>Potential for a minor economic benefit in the construction sector.</p> <p>In the longer term institutions and commercial businesses may develop programs to "buy back" used white goods.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential small increase in positive social and lifestyle changes. Potential for minor short term increase in low skill employment and minor increase in economic development. Long term employment and economic development effects uncertain. Most convenient system for residents, with system 1. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change and for employment and economic development in the short or long term.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclables and leaf and yard waste and increase in quantities and types of materials recycled, manufacture/distribution of composters, program administration and management of facility.</p> <p>Minor short-term increase in construction sector employment is probable for construction of composting facility and expansion of recycling centre.</p> <p>Long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters. Magnitude of effect is uncertain. Potential for a minor economic benefit in the construction sector. Indirect (secondary and tertiary) economic effects could occur; magnitude, timing and direction is uncertain. Recycling in multi-family buildings will increase the supply of recyclable materials and lead to improved economies of scale for recycling industries. Minor direct economic benefits in printing, production and distribution of promotional/ education materials. 		
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be limited by providing a variety of options for waste management. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution effect on some local communities, population groups and industries located near a composting facility and depots as they may be affected by nuisance effects while other residents served by the facility are not affected.</p> <p>Reuse centres are likely to have a positive effect for lower income groups, making available lower cost items and increasing potential market for their goods.</p>	<p>Negative distribution effect on some local communities, population groups and industries and on lifestyle of residents located near a composting facility as they may be affected by nuisance effects which other residents served by the facility are not.</p> <p>Positive effect from reuse centres for lower income groups as more lower cost items available /resaleable.</p> <p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pays the costs for changing to more sustainable behaviour</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive effect with increase in lower cost used items and resale market available to lower income groups. Less inconvenience to residents than direct cost, expanded blue box, wet/dry and mixed waste processing. Slightly greater inconvenience than existing system. More equitable distribution of 3Rs services between housing types than systems 1 and 2, but less than systems 3 and 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential negative distribution of effects from facilities on residents, and groups living near the facilities. Second least positive effect on future generations.
Distribution of lifestyle effects	Positive lifestyle distribution effect by increased of service for multi-family and rural households.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<ul style="list-style-type: none"> Minor positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse. Current generation pay the costs for changing to more sustainable behaviour in paying for MRF, expansion of community recycling centres and depot. 		

TABLE A3.3
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Peel Region

SYSTEM

: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin, and noise associated with composting facility, MRF's and depots. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Possible displacement of residents for the location of new MRF's, composting facility and possibly depot facilities should be minimized by site selection process.</p> <p>Health concerns associated with centralized open windrow facilities, will be minimized by education and consultation. Could be mitigated by proper design and control.</p> <p>Possible stigma for neighbourhood from facilities.</p>	<p>Possible displacement of residents and community features and businesses from siting new facilities.</p> <p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin and noise on residents and community features and businesses. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential health concerns for residents, special/sensitive groups and employees at MRF's and composting facilities. Magnitude will be minimized by proper design, control, planning, consultation and education.</p> <p>Elderly and physically challenged may have difficult time setting out recyclable and compostable materials and using drop-off facilities and transfer stations.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Possible stigma effect on communities and neighbourhoods.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No major new facilities are required beyond existing/committed; therefore there is less potential for displacement and disruption of residents, community features and businesses and disruption of quality of life near facilities than with MWP or Wet/Dry. Possible increase in community pride, as people are encouraged to do and learn more. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for odour effects, health concerns and other nuisance effects from existing and committed facilities. Potential for effects from illegal dumping/burning. Potential disruption due to one new centralized composting facility, one new MRF, community recycling centres and mini-recycling depots and drop-off facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and using drop-off facilities and transfer stations.</p> <p>Minor nuisance effects from composting facilities dependant on composting operation, management, type of facility, type of compostable material and sensitivity of receptor. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards will be minimized by education. Could be mitigated by proper design and control.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> Minor traffic inconvenience in communities where materials are sorted at the truck during pick up of recyclables. Potential stigma effect on community due to nuisance effects from facilities. Possible increase in community pride from participation in promotion/education programs. Potential for illegal dumping/burning as resistance to direct cost. Could be minimized by variable rates schemes, enforcement, expanded 3Rs, etc. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Possible displacement of community features and businesses for location of composting facility, MRFs and depots.</p> <p>Minor nuisance effects on community features and businesses at MRFs, facilities and depots facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on Community features and Businesses.</p> <p>Health concerns associated with centralized open windrow facilities, will be minimized by design, planning, consultation and education.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride.</p> <p>Reuse centres may foster greater acceptance of using repair/used items and lead to lifestyle change.</p> <p>Greater awareness of HIIW management may change purchasing habits/attitudes.</p> <p>Could lead to a greater "contamination" of recyclables as residents maximize use of 3Rs to avoid paying for garbage.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc..</p> <p>A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi, etc.).</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups (e.g. elderly) unable to participate and are more affected by nuisances.</p> <p>Greater awareness of HIIW management may lead to a change in purchasing.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (Secondary and tertiary) effects could occur; magnitude, timing and direction is uncertain.</p> <p>Short term increase in construction sector employment is probable because of need for more facilities.</p> <p>Potential increase in costs for tenants because of implementation of 3Rs system in multi-family dwellings.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should increase greater awareness of 3Rs and encourage households to separate and practice recycling and composting. Potential increase in community pride and cohesion through reuse activities. Increased volume of materials improves economies of scale for recycling industries and employment in short and long term. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Probable increase in illegal dumping and incineration by households, particularly in rural areas. Potential increase in costs to tenants of multi-family buildings.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Short term increase in low skill jobs with increase in curbside collection of recyclable and leaf and yard waste and increase in quantities and types of materials recycled, manufacture/distribution of composters, program and administration and management, facilities. Magnitude of effect is uncertain.</p> <p>Long term employment effects uncertain in Peel. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. The region's strong manufacturing base may have a significant role to play. Magnitude of effect is uncertain.</p> <p>Short-term increase in construction sector employment is probable for construction of composting facility, MRFs, and depots.</p>	<p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude of effect is uncertain.</p> <p>Potential for a short term economic and employment benefit in the construction sector.</p>	<p><u>Disadvantages</u></p> <p>Potentially more inconvenient than systems 1 or 2.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, and promotion and distribution. Magnitude of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sections, cost-savings from a reduction in landfill fees due to reduced volumes; magnitude timing and direction is uncertain.</p> <p>Recycling in multi-family buildings with direct cost will increase the supply of recyclable materials and lead to improved economics of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a short term economic benefit in the construction sector.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants. Landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be limited by providing a variety of options for waste management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRFs and composting facilities as they may be affected by nuisance effects while other residents served by the facility are not. Magnitude of effects may be minimized by proper siting considerations for new facilities and proper management.</p> <p>Positive social distribution effect is likely because direct cost is targeted to all types of residences.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHW collection in some municipalities.</p> <p>There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p>	<p>There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p> <p>Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future.</p> <p>Reuse activities have some positive social welfare benefits.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items will be available.</p> <p>Expanding 3Rs programs to various type of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Lower income families should benefit financially from an increase in the availability of reusable goods through reuse centres. Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. (Uncertain) System applies to all types of residences. Current generation is taking greater responsibility for managing its waste generation and diversion problem. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative effect on large families households as they will generate more garbage. Increased costs with direct cost system will be a burden on lower income families. Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities. Less significant than Wet/Dry and Mixed Waste Processing Systems.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)	Positive lifestyle distribution effect by increased opportunities of service for multi-family households.		<u>Disadvantages</u> Second least negative distribution effects due to facilities.
Potential future generation effects of system	Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse. Current generation pays the costs for changing to more sustainable behaviour in paying for MRF, expansion of community recycling centres and depot.		

TABLE A3.4
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Peel Region

SYSTEM

: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible displacement of residents for the location of new composting facility, MRFs and depots. Should be minimized by site selection process.</p> <p>Health concerns associated with centralized open windrow facilities will be minimized by education and consultation. Could be mitigated by proper design and control.</p> <p>Minor nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with composting facilities, MRFs and depots. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Possible stigma for neighbourhood from facilities.</p>	<p>Possible displacement of residents, community features and businesses from location of composting facility, MRFs and depots.</p> <p>Minor nuisance effects on residents, special & sensitive groups and community features and businesses.</p> <p>Potential health concerns for residents, special & sensitive groups and employees at MRF's and composting facilities.</p> <p>Elderly and physically challenged may have difficult time setting out recyclables and compostable material for pick-up and using drop-off facilities and transfer stations.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p>	<p><u>Advantages</u></p> <p>No major new facilities are required beyond existing/committed, therefore there is less potential for displacement and disruption of residents, community features and businesses near facilities than with mixed solid waste and possibly wet/dry.</p> <p>Possible increase in community pride as people are encouraged to do and learn more.</p> <p>Does not depend on centralized composting.</p> <p>Potential effects are likely less significant than systems 5 and 6.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off facilities and transfer stations.</p> <p>Minor nuisance effects from composting facilities dependant on composting operation, management, type of facility, type of compostable material and sensitivity of receptor. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards. Will be minimized by education. Could be mitigated by proper design and control.</p>		<p><u>Disadvantages</u></p> <p>Possible displacement and disruption of some residents, community features and businesses from location of additional composting facility, MRFs and depots.</p> <p>Potential for odour effects, health concerns and other nuisance effects from existing facilities.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<p>Minor traffic inconvenience in communities where materials are sorted at the truck during pick up of recyclables.</p> <p>Potential stigma effect on community.</p> <p>Minor negative effect on community image from illegal dumping may be minimized through development of incentives for people to donate useful large items to charitable organizations or reuse centres.</p> <p>Possible increase in community pride from participation in 3Rs and promotion/education programs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Possible displacement of community features and businesses for location of new composting facility, MRFs and depots.</p> <p>Minor nuisance effects of odour and health concerns on community features and businesses at MRFs, compost facilities, and depots may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities to reduce nuisance effects.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Health concerns associated with centralized open windrow facilities, will be minimized by design, planning, consultation and education.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. Greater awareness of HHW management may change purchasing habits/attitudes.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>A number of minor lifestyle effects associated with backyard, vermi-, and multi-family composters (odours, vermin, etc.).</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups unable to participate and are affected by nuisances. Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects (secondary and tertiary) could occur. Magnitude, timing, and direction of effect is uncertain.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude, timing and direction of effect is uncertain.</p> <p>Potential for a minor short term economic and employment benefit/increase in the construction sector.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential increase in awareness and participation of 3Rs and households source separating and practising recycling and composting. Potentially increase in community pride and cohesion through reuse activities and potential for lifestyle change. Potential increase in employment and economic development but magnitude uncertain. Expansion of materials collected may stimulate new recycling industries, but this advantage may be an economic disadvantage for industries based on virgin material production. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for a variety of lifestyle inconveniences/effects. Greater inconvenience than existing, existing/committed, direct cost. Potential increase in costs to tenants of multi-family buildings.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Long term employment gains in 3Rs related industries may be dependent on Peel utilizing its significant manufacturing base to capture new markets with expanded Blue Box items.</p> <p>Short term increase in construction sector employment is probable because of a need for more facilities.</p>	<p>Possible increase in community pride as people are encouraged to do and learn more.</p> <p>Potential increase in costs for tenants because of implementation of 3Rs systems in multi-family buildings.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, printing and promotion, construction industry and services. Magnitude, timing and direction of effect is uncertain. Indirect economic effects could include changes (short and long) in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes. Magnitude, timing and direction is uncertain. Recycling in all multi-family buildings and expansion of Blue Box will increase the supply of recyclable material and lead to improved economies of scale for recycling industries. Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors. Potential for a short term economic benefit in the construction sector. 		
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential increase in costs for tenants. Landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be limited by providing a variety of options for waste management. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRFs, depots and composting facilities as they may be affected by nuisance effects while other residents served by the facility are not. Magnitude of effect may be minimized by proper siting consideration of new facilities and proper management. Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods. Minor effect in different level of service for white goods and HHW collection in some municipalities. 	<ul style="list-style-type: none"> Current generation pays cost for changing to a more sustainable behaviour, results in positive future generational effect. Reuse activities have some positive social welfare benefits. Positive effect from reuse centres for lower income groups as more low cost items will be available. Expanding 3Rs programs to various types of residences has a positive social distribution effect. Negative social distribution effects on some communities and populations which must bear a variety of potential nuisance and health effects from the facilities. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Current generation taking greater responsibility for managing its waste generation and diversion problem. Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. System can apply to all types of residences and improved distribution effects. Second least negative distribution effects due to facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities. Less significant than wet/dry and mixed waste processing systems.
Distribution of lifestyle effects	<ul style="list-style-type: none"> Positive lifestyle distribution effect by increased opportunities of service for multi-family households. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<ul style="list-style-type: none"> Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse. Current generation pay the costs for changing to more sustainable behaviour in paying for MRF, expansion of community recycling centres and depot. 		

TABLE A3.5
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential WET/DRY

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> Potential for health (odour) & nuisance (visual, traffic, noise, stigma) effects from MRF's, depots and composting facilities. These effects may be more extensive in a wet/dry system than existing facilities. Minor potential for illegal dumping and burning on private property. Potential displacement of residents due to construction of MRF's and composting facility, and depots. Possible stigma effect on community. 	<ul style="list-style-type: none"> Potential displacement of residents, community features and businesses. Health effects on employees at MRF's and on people with allergies and immuno-deficiencies. Elderly and disabled groups are likely to experience difficulties in using wet/dry bins and using drop-off facilities and transfer stations. Potential nuisance effects from MRF's, depots and composting facilities. 	<p><u>Advantages</u></p> <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential displacement and disruption of residents, (more than systems 2,3, and 4, but less than system 6) community features and businesses and disruption of community due to siting new MRF and centralized composting community recycling centres and mini-recycling depots and drop-off facilities. Potential health effects on employees and on people with allergies and immuno-deficiencies at composting facilities. Potential difficulties for elderly and disabled in using wet/dry bins. The system depends on central composting.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly & disabled groups are likely to experience significant difficulties in using and cleaning the wet/dry bins (approx. 10% of population) and use of drop-off facilities and transfer stations. Employees at MRFs and in particular compost facilities may be subjected to a variety of health and safety hazards such as HHW and sharps in "wet" stream. Hazards should be minimized by consultation and education and mitigated by proper design and control. Potential for health effects (odours) on allergy sufferers, people with immuno-deficiencies, etc. from composting facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Small increase in traffic problems is expected due to additional collection vehicles. Potential for community stigma because of facilities and possibility of illegal dumping. Increase in community pride is possible because of increased participation. 		
Potential effects on community features and businesses	<ul style="list-style-type: none"> Potential for health (odour) & nuisance (visual, traffic, noise, stigma) effects from MRFs, depots and composting facilities. These effects may be more extensive in a wet/dry system than existing facilities. Minor traffic nuisance effects are expected for wet/dry. Potential displacement of community features and businesses due to MRF facility and composting sites construction and expansion. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> A number of minor lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents are associated with the wet/dry bins. A positive social and lifestyle effect is expected from participation in various aspects of 3Rs. May encourage a change in purchasing attitudes of HHHW. Reuse centres could contribute to acceptance of reused goods. Reuse activities could encourage neighbourhood/community cohesiveness through participation. Promotion/education could encourage extensive 3Rs participation. 	<ul style="list-style-type: none"> Positive social and lifestyle effects may contribute to an acceptance of reused goods and encourage a change in purchasing attitudes of HHHW. Direct employment and economic gains related to 3Rs activities and industries. Increases in low skill jobs are mostly likely. Indirect (secondary and tertiary) effects could occur. magnitude, timing and direction is uncertain. Over long term potential development of marketable "green" systems, technologies and products in Peel. (Magnitude uncertain) Potential lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents associated with the wet/dry bins. May affect participation. Will increase amount of recyclable materials and lead to improved economies of scale. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive social and lifestyle effects as residents learn the operation of the system and realize the potential for higher waste diversion. (Assumes they continue to source separate.) Effects uncertain. Potential for direct employment and economic gains in the short term related to 3Rs activities and industries. Increases in low skill jobs are mostly likely. Over long term potential for the development of some marketable "green" systems, technologies and products as a greater supply of materials should be available. (Magnitude uncertain) Will increase amount of recyclable materials and lead to improved economies of scale and less contamination than mixed waste system.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<ul style="list-style-type: none"> Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (Secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Short-term increase in construction sector employment is probable because of need for more facilities. 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. Potential negative lifestyle effects/inconveniences for all residents. Inconveniences are greater than for existing, existing committed, direct cost and expanded blue box.
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in 3Rs related industries. Indirect economic effects could include both short and long-term changes in secondary and tertiary sectors. Over the long-term, this could lead to the development of marketable "green" systems, technologies and products. Potential for a minor economic benefit in the construction sector. Will increase amount of recyclable materials and lead to improved economies of scale. 		
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. Effects uncertain with material banning legislation. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Some communities, population groups, and industries are likely to bear disproportionate nuisance effects (odour, litter, traffic, etc.) from composting facilities and MRI's. Reuse centres are likely to have a positive effect for low income groups making available low cost items and adds potential market for their goods. 	<ul style="list-style-type: none"> Potential positive social distribution effect as wet/dry is targeted to all types of residences. However, some communities, population groups and industries will bear disproportionate nuisance effects from MRI's composting facilities and depots. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive social distribution effect as wet/dry is targeted to all types of residences. Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment, more waste diverted but may have a negative effect on future 3Rs behaviour. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> May reduce emphasis on source separation if managing the diverted material and bins is difficult; may not reinforce shift to 3Rs. Some communities and population groups will bear disproportionate nuisance effects from MRI's and composting facilities.
Distribution of lifestyle effects	<ul style="list-style-type: none"> Positive lifestyle distribution effect by increased level of service for multi-family households and rural residents, potential for minor difference in convenience with wet/dry system between high-density and low-density residents. 	<ul style="list-style-type: none"> Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment. 	
Potential future generation effects of system	<ul style="list-style-type: none"> Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment. Current generation pays the costs for changing to more sustainable behaviour in paying for expansion of community recycling centres and depots. 		

TABLE A3.6
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> Minor nuisance effect from traffic, odour, (excluding MWP, see below) litter, scavenging animals, birds, vermin, and noise associated with existing and committed facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management. Potential for significant odour effect from Mixed Waste Processing (MWP) facility. Virtually all plants in the US have significant odour problems that have led to their closure. Mitigation measures may have a number of limited effects. Possible displacement of residents for the location of a new facility may be minimized by site selection process. Health concerns associated with centralized open windrow facilities may be minimized by education and consultation and monitoring. Possible stigma for neighbourhood from facilities. 	<ul style="list-style-type: none"> Minor nuisance effect on residents, communities, special/sensitive groups, community features from facilities. Potential significant odour effect from MWP facility. Possible displacement of residents and community features and businesses from location of new facilities. Stigma and disruption effects related to potential health concerns for residents and special/sensitive groups and for employees at MWP facility. Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up. Reuse activities have some increased appeal and household economic benefits. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Possible increase in community pride as people are encouraged to do and learn more. This could be a disadvantage if there are significant negative effects from the MWP facility. Could substantially increase volume of recyclable materials available provided they are not contaminated. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Greatest potential displacement and disruption of residents, community features and businesses from the MWP facility. Potential significant odour effect from MWP facility.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Potential for significant nuisance and health (odour) effect from Mixed Waste Processing and composting facilities on allergy sufferers, people with immuno deficiencies, etc. Employees at MWP and compost facilities may be subjected to a variety of health and safety hazards. Possibility of significant effects on employees at MWP facility. Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off centres and transfer stations. Minor nuisance effects from existing/committed facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Potential for community stigma effect from presence of composting and MWP facilities. Minor traffic inconvenience in communities where materials are sorted at the truck during pick up of recyclables. Possible increase in community pride from promotion/education programs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Potential for significant odour effect from Mixed Waste Processing (MWP) facility on people at community features. Mitigation measures may have only a limited effect.</p> <p>Possible displacement of community features and businesses from location of new composting facility, expansion of community recycling centres and construction of MWP facility.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses.</p> <p>Minor nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with existing and committed facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Health concerns associated with centralized windrow facilities, will be minimized by design, planning, consultation and education.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Generally, a positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. However, the mixed waste processing component may have a negative effect because some people may not perceive a need for source separation. It may lead to counter-productive attitudes.</p> <p>Greater awareness of HHW management may change purchasing habits/attitudes.</p> <p>Reuse activities have some social welfare benefits.</p> <p>Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>A number of minor lifestyle inconveniences associated with composters (vermin and multi-family).</p>	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride. May have a negative effect if people do not source separate.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries.</p> <p>Indirect effects (secondary and tertiary) could occur. Magnitude, timing, and direction of effect is uncertain.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude of effect is uncertain.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential to reduce household source separation in the long term, reduce emphasis on individuals' role in 3Rs. Should substantially increase the amount of materials recovered, therefore improving economies of scale for many recycling industries. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for economic development and employment may be reduced by greater contamination of recyclables. Unlikely to maximize positive lifestyle change. May reduce the amount of household source separation. Potential for greater inconvenience than systems 1, 2, and 3.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<ul style="list-style-type: none"> Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Long term employment gains in 3Rs related industries may be dependent on Peel utilizing its significant manufacturing base for this new sector. Short term increase in construction sector employment is probable because of a need for more facilities. 	<ul style="list-style-type: none"> Potential for a minor short term economic and employment benefit/increase in the construction sector. Increased amount of materials from mixed waste processing will lead to improved economies of scale for recycling industries. 	
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in recycling industries, collection services, manufacture and distribution of composters, printing and promotion and in construction industry and services. Magnitude, timing and direction of effect is uncertain. Indirect economic effects could include changes (short and long) in secondary and tertiary sections, and cost-savings from a reduction in landfill fees due to reduced volumes. Magnitude, timing and direction is uncertain. Recycling in all multi-family buildings and mixed waste processing will increase the supply of recyclable materials and lead to improved economics of scale which should provide better support for recycling industries. Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors. Potential for a significant short term economic benefit in the construction sector. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits Distribution of socio-economic effects on industry and population groups	<p>Negative lifestyle and quality of life distribution effect on some local communities, population groups and industries located near MRT's and composting facility. Very negative distribution effect is likely with the operation of a MWPC facility.</p> <p>Positive effect from reuse centres for lower income groups as more low cost items available. Adds potential market for used goods.</p> <p>Minor effect in different level of service for white goods and HHHW collection in some municipalities.</p>	<p>Positive effect from reuse centres for lower income groups as more low cost items will be available, greater resale market and has positive social welfare benefits.</p> <p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MWPC facility.</p> <p>Positive social distribution effects likely because system is targeted to all types of residences.</p> <p>Minor effect in different level of service for white goods and HHHW collection in some municipalities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Lower income families should benefit financially from an increase in the availability of reusable goods through reuse centres. Current generation pays cost for reclaiming useful materials from the waste stream, results in positive effect for the future. Positive social distribution effects likely because system is targeted to all types of residences, more than systems 1, 2, and 3. Largest increase in the amount of materials recovered from recycling should lead to greatest reduction in the use of virgin resources for manufacturing.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects	<ul style="list-style-type: none"> Positive lifestyle distribution effect by increased opportunities of service for multi-family households. 	<ul style="list-style-type: none"> Minor effect with greater support for product stewardship where white goods and HHW collection not offered. Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future. 	<u>Disadvantages</u> <ul style="list-style-type: none"> Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near a MWP facility. Greatest negative potential effect on future generations due to the potential for residents to reduce or stop separating material; it is a change to a less sustainable behaviour.
Potential future generation effects of system	<ul style="list-style-type: none"> Positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse. Current generation pays cost for reclaiming useful materials from the waste stream, results in positive effect for the future. Significant potential negative effect from the reduction in emphasis on individual behaviour and source separation; may result in a shift back to a less sustainable behaviour in the long term. 		

TABLE A4.1
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect such as traffic, litter and noise associated with MRFs and depots. Effects dependant on operation, type of facility, type of material, sensitivity of receptor and density of surrounding population.</p> <p>Significant odour effects, health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with centralized composting facility.</p>	<p>Minor nuisance effect on residents, community features, businesses and communities associated with MRFs, depots and traffic.</p> <p>Odour and health concerns associated with centralized composting facility.</p> <p>Elderly and physically challenged may be having a difficult time setting out material for pick-up and using drop off facility.</p> <p>Potential stigma effect on neighbourhoods and communities due to nuisance effects from the facilities.</p>	<p><u>Advantages</u></p> <p>No new facilities are required.</p> <p>Effects are due to increased use of existing facilities.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly and physically challenged may be having a difficult time setting out recyclable and compostable material for pick-up, and using drop-off facility. Nuisance effects from composting facility dependant on composting operation, type of facility, type of compostable material, density of surrounding population and sensitivity of receptor. Employees at MRFs and compost facility are subjected to a variety of potential health and safety hazards. 		
Potential effects on communities	<ul style="list-style-type: none"> Potential stigma effect on community due to nuisance effects from the facilities. Community pride from participation in promotion/ education programs. Minor traffic inconvenience in communities where materials are sorted during pick-up. 		
Potential effects on community features	<ul style="list-style-type: none"> Minor nuisance effects on community features and businesses at some facilities (MRFs, etc.). Odour effects, health concerns and minor nuisance effects associated with centralized composting facility. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, and promote personal and/or community pride. Greater awareness of HHW may change purchasing and disposal attitudes/habits.</p> <p>Minor lifestyle inconveniences associated with backyard composters.</p>	<p>Positive social and lifestyle effect and personal and/or community pride. May be changing purchasing habits/attitudes.</p> <p>Possible minor increase in low skill jobs.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p> <p>Potential direct economic benefits. Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude, timing and direction is uncertain.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Most convenient system for residents. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change. Unlikely to lead to significant improvement in economies of scale for recyclables.
Potential effect on employment	<p>Very minor direct employment gains primarily in low skill jobs in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction of effect is uncertain.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Very minor direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composites, construction industry and services. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include short and long term changes in secondary and tertiary sectors; magnitude, timing and direction is uncertain.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Minor positive effect through support of recycling.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution effect on some local communities, population groups and industries located near composting facility and MRT's as they may be affected by nuisance effects while other residents served by the facility are unaffected.</p> <p>Minor distribution effect from provision of different levels of service for HHW collection in some municipalities.</p>	<p>Negative distribution effect on some local communities, population groups and industries located near lifestyle of residents located near composting facility and MRT's as they may be affected by nuisance effects while other residents served by the facility are unaffected.</p> <p>Minor lifestyle distribution effect between multi-family and low density residents in lower opportunities for recycling and composting.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Least negative distribution of effects from facilities on residents, and groups living near the facilities. Least inconvenience to residents. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Least positive effect on future generations. Least potential for lifestyle change.
Distribution of lifestyle effects	<p>Minor lifestyle distribution effect between multi-family and low density residents in fewer opportunities for composting and recycling for multi-family.</p> <p>Rural residents have greater effect on their lifestyle than urban residents because they are required to self haul garbage.</p> <p>Minor lifestyle distribution effect as collection of recyclables varies amongst municipalities.</p>	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour.</p>	<ul style="list-style-type: none"> Least positive distribution effect of 3Rs services and infrastructure. Few opportunities for multi-family residences. Limited additional employment and economic development in the short or long term.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for facilities and infrastructure.</p>		

TABLE A4.2
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: York Region

SYSTEM

: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effects such as traffic, litter, and noise, associated with MRI's and depots. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor.</p> <p>Possible displacement of residents for the location of new facilities should be minimized by site selection process.</p> <p>Potential odour and health concerns, and minor nuisance effects such as traffic, litter, birds, vermin and noise, associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p> <p>Possible stigma effect on neighbourhood.</p>	<p>Potential odour and health concerns, and minor nuisance effects with centralized composting facilities.</p> <p>Possible displacement of residents, community features and businesses from siting new facilities.</p> <p>Minor nuisance effect for residents, community features, businesses and communities associated with MRI's and depots.</p> <p>Elderly and physically challenged may have difficult time setting out material for pick-up and using drop-off facilities.</p> <p>Employees at MRI's and in particular compost facilities may be exposed to health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Possible stigma effect on neighbourhoods and communities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Fewer people adversely affected than systems 5 and 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for displacement than systems 2-4 of residents, community features and businesses from expanding facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off facilities. Nuisance effects from composting facilities dependant on composting operation, type of facility, type of compostable material and sensitivity of residents. Employees at MRFs and in particular compost facilities may be exposed to health and safety hazards. Should be minimized by education. Could be mitigated by proper design and control. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management. 		
Potential effects on communities	<ul style="list-style-type: none"> Traffic inconveniences will increase due to committed additions. Potential stigma effect on community due to nuisance effects from the facilities. Possible increase in community pride from participation in promotion/education programs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Possible displacement of community features and businesses from location of new MRF and composting facilities.</p> <p>Minor nuisance effects on community features and businesses at some facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses due to nuisance effects from the facilities.</p> <p>Odour effects and health concerns associated with centralized composting facilities, may be reduced by proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<ul style="list-style-type: none"> Positive social and lifestyle effect from all 3Rs, by encouraging people to do and learn more, and promote personal and/or community pride. Multi-family/ high rise will now feel included in this positive initiative. Greater awareness of HHW may change purchasing and disposal habits/attitudes. Promotion/education could encourage extensive 3Rs participation. Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars, etc. A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi, etc.) and multi-family recycling. 	<ul style="list-style-type: none"> Potential positive social and lifestyle effect and increase in personal and/or community pride including multi-family. Potential minor short-term increase in low skill and construction sector employment. Long term employment effects uncertain. Potential direct economic benefits. Indirect economic effects could include changes (short and long) in secondary and tertiary sectors; cost-savings from a reduction in landfill fees due to reduced volumes; magnitude timing and direction is uncertain. Potential for a minor economic benefit in the construction sector. Potential increase in costs for multi-family building owners, managers and tenants. Increased opportunities for recycling should increase the quantity of recyclables and lead to improved economies of scale for recycling industries. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential small increase in positive social and lifestyle changes. Potential for minor short term increase in low skill employment and minor increase in economic development. Long term employment and economic development effects uncertain. Slightly less convenient for residents than system 1. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Unlikely to maximize the potential for lifestyle change and for employment and economic development in the short or long term.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain.</p> <p>Net long term employment effects uncertain. Will be partly dependent on the Regions ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs.</p> <p>Minor short-term increase in construction sector employment is probable for construction of composting facilities and one MRF.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are possible in recycling industries, collection services, printing, production and promotion and in manufacture and distribution of composters. Magnitude, timing and direction of effect is uncertain. Indirect (secondary and tertiary) economic effects could occur; magnitude, timing and direction is uncertain. Potential for a minor economic benefit in the construction sector. Recycling in multi-family buildings will increase the supply of recyclable materials and lead to improved economies of scale for recycling industries. Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors. 		
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential increase in costs for tenants; landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling. Effect may be limited by providing a variety of options for waste management. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution effect on some local communities, population groups and industries located near composting facilities, MRF's and depots as they may be affected by nuisance effects while other residents served by the facility are unaffected.</p> <p>Minor effect in different level of service for HHW collection in some municipalities.</p> <p>Positive effect by increasing opportunities for multi-family households to participate.</p>	<p>Negative distribution effect on some local communities, population groups and industries and on lifestyle of residents located near composting facilities as they may be affected by nuisance effects which other residents served by the facility are unaffected.</p> <p>Positive effect by inclusion of multi-family residences.</p> <p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation pays the costs for changing to more sustainable behaviour.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Second least negative distribution effects due to facilities. More equitable distribution of 3Rs services between housing types than system 1 but less than systems 3,4,5, and 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Second least positive effect on future generations.
Distribution of lifestyle effects	Positive lifestyle distribution effect by increased opportunities of service for multi-family and rural households.		
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for facilities and infrastructure.</p>		

TABLE A4.3
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: York Region

SYSTEM

: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts Potential effects on residents	<p>Minor nuisance effect from traffic, litter and noise associated with MRF's and depots. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential odour and health concerns, and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p> <p>Possible displacement of residents for the location of new facilities; should be minimized by site selection process.</p> <p>Possible stigma effect on neighbourhood.</p>	<p>Possible displacement of residents and community features and businesses from siting new facilities.</p> <p>Minor nuisance effect from traffic, odour, scavenging animals, birds, vermin and noise on residents and community features and businesses. Magnitude may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential health concerns for residents, special/sensitive groups and employees at MRF's and composting facilities.</p> <p>Elderly and physically challenged may have difficult time setting out recyclable and compostable materials and using drop-off facilities.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Possible stigma effect on communities and neighbourhoods.</p> <p>Potential for illegal burning/dumping as opposition to direct cost.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No major new facilities are required beyond existing/committed. Possible increase in community pride, as people are encouraged to do and learn more. Fewer people to be adversely affected than systems 5 and 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for displacement and disruption of residents from new facilities and expanded use of existing facilities. Similar to Systems 2-4. Potential for illegal burning/dumping.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly (less significant proportion in York than in other regions) and physically challenged may have difficult time setting out recyclables and compostable material for pick-up and use of drop-off facilities.</p> <p>Nuisance effects from composting facilities dependant on composting operation, management, type of facility, type of compostable material, density of surrounding population and sensitivity of receptor. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude of effect may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards, will be minimized by education. Could be mitigated by proper design and control.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<p>Traffic inconveniences will increase due to the committed and direct cost additions.</p> <p>Potential stigma effect on community due to potential nuisance effects from facilities.</p> <p>Possible increase in community pride from participation in promotion/education programs.</p> <p>Potential for illegal dumping/burning as resistance to direct cost. Could be minimized by variable rates schemes, enforcement, expanded 3Rs, etc.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Possible displacement of community features and businesses for location of new MRF and composting facilities.</p> <p>Minor nuisance effects on community features and businesses at MRFs, facilities and depots facilities, may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Possible stigma on community features and businesses.</p> <p>Odour effects and health concerns associated with centralized composting facilities, may be reduced by proper management. Net effects uncertain.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride.</p> <p>Increased appeal and household economic benefits can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>Greater awareness of HHW management may change purchasing habits/attitudes.</p> <p>Could lead to a greater "contamination" of recyclables as residents maximize use of 3Rs to avoid paying for garbage.</p> <p>A number of minor lifestyle inconveniences associated with backyard, vermi- and multi-family composters (odours, vermi, etc.).</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups (e.g. elderly) unable to participate and are affected by nuisances.</p> <p>Greater awareness of HHW management may lead to a change in purchasing.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (Secondary and tertiary) effects could occur; magnitude, timing and direction is uncertain.</p> <p>Short term increase in construction sector employment is probable because of need for more facilities.</p> <p>Potential increase in costs for tenants because of implementation of 3Rs system in multi-family dwellings.</p> <p>Minor increase in volume of recyclables and improve economies of scale.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should increase greater awareness of 3Rs and encourage households to separate and practice recycling and composting. Should increase volume of materials and improve economies of scale for recycling industries less than systems 5 and 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Probable increase in illegal dumping and incineration by households. Potentially less convenient than systems 1 and 2.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction of effect is uncertain.</p> <p>Long term employment effects uncertain in York. Will be partly dependent on the Region's ability to capture "green" jobs and not lose jobs in other sectors as a result of 3Rs. Magnitude, timing and direction of effect is uncertain.</p> <p>Short-term increase in construction sector employment is probable for construction of composting facilities and one MRF.</p>	<p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects (secondary and tertiary) could occur. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude, timing and direction of effect is uncertain.</p> <p>Potential for a short term economic and employment benefit in the construction sector.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, and promotion and distribution. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes; magnitude timing and direction is uncertain.</p> <p>Recycling in multi-family buildings with direct cost will slightly increase the supply of recyclable materials (in York Region) and lead to improved economics of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a short term economic benefit in the construction sector.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling (in York Region only 10% of the residences are high and low rise). Effect may be limited by providing a variety of options for waste management. If a building currently has municipal collection service, direct cost system may encourage landlords and tenants to become more active.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 3 : Distribution of Social Costs and Benefits</p> <p>Distribution of socio-economic effects on industry and population groups</p>	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRFs, depots and composting facilities as they may be affected by nuisance effects which other residents served by the facility are unaffected. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Minor effect in different level of service for HHW collection in some municipalities.</p> <p>There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p>	<p>There will be a negative distribution effect as costs for garbage collection could be proportionally higher for larger families and not affordable for lower income households.</p> <p>Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future.</p> <p>Expanding 3Rs programs to various type of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. Greater than systems 1 and 2. Current generation is taking greater responsibility for managing its waste generation and division problem. Less negative distributional effects due to use of facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative effect on large families households as they will generate more garbage. Increased costs with direct cost will be a burden on lower income families. Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities. Less significant than Wet/Dry and Mixed Waste Processing Systems.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)	Positive lifestyle distribution effect by increased opportunities of service for multi-family and rural households.		
Potential future generation effects of system	<ul style="list-style-type: none"> Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse. Current generation bears the costs in paying for facilities and infrastructure. 		

TABLE A4.4
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : York Region
SYSTEM : Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible displacement of residents for the location of new composting facilities, MRI's and depots. Should be minimized by site selection process.</p> <p>Minor nuisance effects such as traffic, litter and noise associated with MRI's and depots. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor.</p> <p>Potential odour and health concerns, and minor nuisance effects, such as traffic, litter, birds, vermin and noise, associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p> <p>Possible stigma for neighbourhood from facilities.</p>	<p>Possible displacement of residents, community features and businesses from location of composting facilities and MRI's.</p> <p>Minor nuisance effects for residents, special & sensitive groups and community features and businesses.</p> <p>Potential odour and health concerns, and minor nuisance effects, associated with centralized composting facilities.</p> <p>Elderly and physically challenged may have difficult time setting out recyclables and compostable material for pick-up and using drop-off facilities.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Possible increase in community pride as people are encouraged to do and learn more. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for displacement and disruption of residents from new facilities, expanded use of existing facilities and depots. Similar to systems 2 and 3. Possible displacement and disruption of some residents, community features and businesses from location of additional composting facility and MRI's. Potential for odour effects, health concerns and other nuisance effects from existing facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off facilities. Nuisance effects from composting facilities dependant on composting operation, management, type of facility, type of compostable material, density of surrounding population and sensitivity of receptor. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management. Employees at MRFs and compost facilities may be subjected to a variety of health and safety hazards. Will be minimized by education. Could be mitigated by proper design and control. 		
Potential effects on communities	<ul style="list-style-type: none"> Traffic inconveniences will increase with the committed and expanded Blue Box additions. Potential stigma effect on community. Possible increase in community pride from participation in 3Rs and promotion/education programs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Possible displacement of community features and businesses for location of new composting facilities and MRFs.</p> <p>Minor nuisance effects on community features and businesses at MRFs, compost facilities, and depots may be minimized by proper siting considerations of new facilities and proper management at existing and new facilities to reduce nuisance effects.</p> <p>Possible nuisance effects on community features and businesses from traffic and hauling.</p> <p>Odour effects and health concerns associated with centralized composting facilities may be reduced by proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<p>Positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. Greater awareness of HHW management may change purchasing habits/attitudes.</p> <p>Increased appeal and household economic benefits with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>A number of minor lifestyle effects associated with backyard, vermi-, and multi-family composters (odours, vermin, etc.) and with recycling in multi-family buildings (should not be a very significant problem in York Region).</p>	<p>Potential for a variety of lifestyle inconveniences and effects. Some resident groups unable to participate and are affected by nuisances.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect effects (secondary and tertiary) could occur. Magnitude, timing, and direction of effect is uncertain.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products. Magnitude, timing and direction of effect is uncertain.</p> <p>Potential for a minor short term economic and employment benefit/increase in the construction sector.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should increase greater awareness and encourage households to separate and practice recycling and composting. Should increase volume of materials and improve economies of scale for recycling industries. Less than systems 5 and 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for a variety of lifestyle inconveniences/effects. Greater inconvenience than existing, existing/committed, direct cost. Potential increase in costs to tenants of multi-family buildings.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Long term employment gains in 3Rs related industries may be dependent on York Region capturing new markets with expanded Blue Box items.</p> <p>Short term increase in construction sector employment is probable because of a need for more facilities.</p>	<p>Possible increase in community pride as people are encouraged to do and learn more.</p> <p>Potential increase in costs for tenants because of implementation of 3Rs systems in multi-family buildings.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are possible in recycling industries, collection services, manufacture and distribution of composters, printing and promotion, construction industry and services. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sectors, cost-savings from a reduction in landfill fees due to reduced volumes. Magnitude, timing and direction is uncertain.</p> <p>Recycling in all multi-family buildings and expansion of Blue Box will increase the supply of recyclable material and lead to improved economies of scale for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a short term economic benefit in the construction sector.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate recycling (in York Region only 10% of the residences are high and low rise). Effect may be limited by providing a variety of options for waste management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near MRE's, depots and composting facilities as they may be affected by nuisance effects while other residents served by the facility are unaffected. Magnitude of effect may be minimized by proper siting consideration of new facilities and proper management.</p> <p>Minor effect in different level of service for IIHW collection in some municipalities.</p>	<p>Current generation bears the cost for changing to a more sustainable behaviour, results in positive future generational effect.</p> <p>Expanding 3Rs programs to various types of residences has a positive social distribution effect.</p> <p>Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Improved distribution of 3Rs services over Systems 1-3. Current generation taking greater responsibility for managing its waste generation and diversion problem. Future generations should benefit from reduction of consumption of natural resources and through implementation of 3Rs strategy. Third least negative distribution effect due to use of expanded facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative social distribution effects on some communities and populations which must bear a variety of nuisance and potential health effects from the facilities. Less significant than wet/dry and mixed waste processing systems.
Distribution of lifestyle effects	<p>Positive lifestyle distribution effect by increased opportunities of service for multi-family and rural households.</p>		
Potential future generation effects of system	<p>Positive effect through more sustainable use of resources and conservation of the environment for future use/enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour in paying for facilities and infrastructure.</p>		

TABLE A4.5
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> Potential for odour effects, health concerns and minor nuisance effects such as traffic, litter, visual, birds, vermin and noise from MRI's, depots and composting facilities. These effects may be more extensive in a wet/dry system than with existing facilities. Potential displacement of residents due to construction of MRI's and composting facilities. Possible stigma effect on community. 	<ul style="list-style-type: none"> Potential displacement of residents, community features and businesses from composting facilities and MRI's. Health effects on employees at MRI's and on people with allergies and immuno-deficiencies. Elderly and disabled groups are likely to experience difficulties in using wet/dry bins and using drop-off facilities. Potential nuisance effects from MRI's, depots and composting facilities. Possible increase in community pride, as people are encouraged to do and learn more. Possible stigma effect on neighbourhoods and communities. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Possible increase in community pride as people are encouraged to do and learn more. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential difficulties for elderly and disabled in using wet/dry bins. Potential displacement and disruption of residents due to the increased flow of materials and potential for more significant odour effects associated with wet waste and because of addition of one additional MRI and added depots.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Elderly & disabled groups are likely to experience significant difficulties in using and cleaning the wet/dry bins and in the use of drop-off facilities.</p> <p>Employees at MRFs and in particular compost facilities may be subjected to a variety of health and safety hazards such as HHW and sharps in "wet" stream. Hazards should be minimized by consultation and education and mitigated by proper design and control.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno-deficiencies, etc. from composting facilities.</p> <p>Nuisance effects from composting facilities dependent on composting operation, management, type of facility, type of compostable material, density of surrounding population and sensitivity of receptor. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p>		
Potential effects on communities	<p>Traffic inconveniences are expected due to the wet/dry collection system.</p> <p>Potential for community stigma because of facilities.</p> <p>Increase in community pride is possible.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features and businesses	<p>Potential for odour effects, health concerns and minor nuisance effects such as traffic, litter, visual, birds, vermin and noise from MRFs, depots and composting facilities. These effects may be more extensive in a wet/dry system than existing facilities.</p> <p>Possible displacement of community features and businesses due to MRFs and composting sites construction and expansion.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> A number of minor lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents are associated with the wet/dry bins. These inconveniences are more tolerable in the housing conditions characteristic of York Region. A positive social and lifestyle effect is expected from participation in various aspects of 3Rs. Promotion/education could encourage extensive 3Rs participation. Increased appeal and household economic benefits with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars, etc. Greater awareness of HHW management may change purchasing habits/attitudes. Uncertain as to the effect on rural residents. 	<p>Positive social and lifestyle effects.</p> <ul style="list-style-type: none"> Direct employment and economic gains related to 3Rs activities and industries. Increases in low skill jobs are mostly likely. Over long term potential development of marketable "green" systems, technologies and products. Magnitude, timing and direction is uncertain. Potential lifestyle inconveniences (difficult to move in winter, waste sticking to bin, etc.) for all residents associated with the wet/dry bins. May affect participation. Will increase amount of recyclable materials and lead to improved economies of scale. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential positive social and lifestyle effects as residents learn the operation of the system and realize the potential for higher waste diversion. (Assumes they continue to source separate.) Will increase amount of recyclable materials and lead to improved economies of scale and less contamination. Only less then System 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. Potential negative lifestyle effects Inconveniences for all residents. Inconveniences are greater than for existing, existing committed, direct cost and expanded blue box.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<ul style="list-style-type: none"> Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Short-term increase in construction sector employment is probable because of need for more facilities. 		
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in 3Rs related industries. Indirect economic effects could include both short and long-term changes in secondary and tertiary sectors. Over the long-term, this could lead to the development of marketable "green" systems, technologies and products. Potential for a minor economic benefit in the construction sector. Wet/Dry and multi-family collection will increase amount of recyclable materials and lead to improved economies of scale. Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors. 		
Potential operational effects on institutions, commercial enterprises and industry	<ul style="list-style-type: none"> Potential for significant operational changes and added costs in implementing a wet/dry system in low rise and high rise apartments. Due to the low proportion of this housing type in York Region, this will not be as significant problem as in Peel of Metro. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Positive social distribution effect is likely because wet/dry is targeted to all types of residences. Some communities, population groups, and industries are likely to bear disproportionate nuisance effects (odour, litter, traffic, etc.) from composting facilities and MRF's. Minor effect in different level of service for HHW collection in some municipalities. 	<ul style="list-style-type: none"> Potential positive social distribution effect as wet/dry is targeted to all types of residences. Some communities, population groups and industries will bear disproportionate nuisance effects from MRF's, composting facilities and depots. 	<u>Advantages</u> <ul style="list-style-type: none"> Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment. <u>Disadvantages</u> <ul style="list-style-type: none"> Some communities and population groups will bear disproportionate nuisance effects from MRF's and composting facilities.
Distribution of lifestyle effects	<ul style="list-style-type: none"> Positive lifestyle distribution effect by increased opportunities of service for multi-family and rural households. Potential for minor difference in convenience with wet/dry system between high-density and low-density residents. 	<ul style="list-style-type: none"> Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment. 	
Potential future generation effects of system	<ul style="list-style-type: none"> Potential positive effect for future generations because of more sustainable use of resources and conservation of the environment for future use/enjoyment. Current generation bears the costs for changing to more sustainable behaviour in paying for, expansion of facilities and infrastructure. 		

TABLE A4.6
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Minor nuisance effect from traffic, litter and noise associated with existing and committed facilities. Magnitude of effects may be minimized by proper siting considerations of new facilities and proper management.</p> <p>Potential for significant odour effect from Mixed Waste Processing and Composting facility. Virtually all plants in the US have significant odour problems that have led to their closure. Mitigation measures may have only a limited effect.</p> <p>Possible displacement of residents for the location of a new MWPC facility, and for existing/committed additions, may be minimized by site selection process.</p> <p>Possible stigma for neighbourhood from facilities.</p> <p>Potential odour and health concerns, and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with centralized composting facilities. May be reduced with public education and consultation and proper management.</p>	<p>Minor nuisance effect on residents, communities, special/sensitive groups, community features from facilities.</p> <p>Potential significant odour effect from MWP facility.</p> <p>Possible displacement of residents and community features and businesses from location of new facilities.</p> <p>Stigma and disruption effects related to potential health concerns for residents and special/sensitive groups and for employees at MWP facility.</p> <p>Potential health concerns for residents, special/sensitive groups and employees at MRFs and composting facilities.</p> <p>Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Possible increase in community pride as people are encouraged to do and learn more. This could be a disadvantage if there are significant negative effects from the MWP facility. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential displacement and disruption of residents, community features and businesses from MRFs, composting facilities and MWP facility. Potential significant odour and health effects from MWP facility. Potential effects to be greater than other systems Potential effects to be greater than other systems.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Potential for significant nuisance and health (odour) effect from Mixed Waste Processing facility on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from composting facilities. Employees at MWP and compost facilities may be subjected to a variety of health and safety hazards. Possibility of significant effects on employees at MWP facility. Elderly and physically challenged may have difficult time setting out recyclable and compostable material for pick-up and use of drop-off facilities. Minor nuisance effects from existing/committed facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Potential stigma effect on community. Traffic inconveniences will increase with the committed additions. Possible increase in community pride from promotion/education programs. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features businesses	<ul style="list-style-type: none"> Potential for significant odour effect from Mixed Waste Processing facility on people at community features. Mitigation measures may have only a limited effect. Possible displacement of community features and businesses from location of existing/committed facilities and construction of MWP facility. Possible nuisance effects on community features and businesses from traffic and hauling. Possible stigma on community features and businesses. Minor nuisance effect from traffic, odour, litter, scavenging animals, birds, vermin, and noise associated with existing and committed facilities. Magnitude may be minimized by proper siting considerations of new facilities and proper management. Health concerns associated with centralized windrow facilities, will be minimized by design, planning, consultation and education. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Generally, a positive social and lifestyle effect, by encouraging people to do and learn more, source separate, reduce garbage and promote personal and/or community pride. However, the mixed waste processing component may have a negative effect because some people may not perceive a need for source separation. It may lead to counter-productive attitudes.</p> <p>Greater awareness of HHW management may change purchasing habits/attitudes.</p> <p>Increased appeal and household economic benefits, with future demographic changes can contribute to neighbourhood cohesiveness and provide communal garage sales, flea markets, bazaars etc.</p> <p>A number of minor lifestyle inconveniences associated with composters (backyard, vermin and multi-family) and with recycling in multi-family buildings.</p>	<p>Potential positive social and lifestyle effect and increase in personal and/or community pride. May have a negative effect if people do not source separate.</p> <p>Direct employment gains, primarily in low skill jobs, are possible in all aspects of municipal waste management and in private sector 3Rs related industries.</p> <p>Indirect effects (secondary and tertiary) could occur. Magnitude, timing, and direction of effect is uncertain.</p> <p>Direct economic benefits are possible in 3Rs related industries. Indirect economic effects could include both short and long term changes in secondary and tertiary sectors. Over the long term this could lead to the development of marketable "green" systems, technologies and products.</p> <p>Magnitude of effect is uncertain.</p>	<p><u>Advantages</u></p> <p>Should substantially increase the amount of materials recovered, therefore improving economics of scale and employment for many recycling industries.</p> <p><u>Disadvantages</u></p> <p>Potential for economic development and employment may be reduced by greater contamination of recyclables.</p> <p>May discourage residents from source separation.</p> <p>Potential for greater inconvenience and unlikely to maximize positive lifestyle change.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains, primarily in low skill jobs, are likely in all aspects of municipal waste management and in private sector 3Rs related industries. Indirect (secondary and tertiary) effects could occur. Magnitude, timing and direction is uncertain. Long term employment gains in 3Rs related industries may be dependent on government and business identifying markets for York Region commerce.</p> <p>Short term increase in construction sector employment is probable because of a need for more facilities.</p>	<p>Potential for a minor short term economic and employment benefit/increase in the construction sector.</p> <p>Increased amount of materials from mixed waste processing will lead to improved economies of scale for recycling industries.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<p>Direct economic benefits are likely in recycling industries, collection services, manufacture and distribution of composters, printing and promotion and in construction industry and services. Magnitude, timing and direction of effect is uncertain.</p> <p>Indirect economic effects could include changes (short and long) in secondary and tertiary sections, and cost-savings from a reduction in landfill fees due to reduced volumes. Magnitude, timing and direction is uncertain.</p> <p>Recycling in all multi-family buildings and mixed waste processing will increase the supply of recyclable materials and lead to improved economics of scale which should provide better support for recycling industries.</p> <p>Indirect effect on economic development by providing the infrastructure required for recycling by the private and public sectors.</p> <p>Potential for a significant short term economic benefit in the construction sector.</p>		
Potential operational effects on institutions, commercial enterprises and industry	<p>Potential increase in costs for tenants, landlords may incur additional costs in order to provide space, facilities and staff time to accommodate 3Rs programs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits Distribution of socio-economic effects on industry and population groups	<p>Negative lifestyle and quality of life distribution effect on some local communities, population groups and industries located near composting facilities. Very negative distribution effect is likely with the operation of a MWP facility.</p> <p>Minor effect in different level of service for HHW collection in some municipalities.</p>	<p>Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near composting facilities, MRIs and in particular MWP facility.</p> <p>Positive social distribution effects likely because system is targeted to most types of residences.</p> <p>Minor effect in different level of service for HHW collection in some municipalities.</p> <p>Current generation pays cost for changing to more sustainable behaviour, results in positive effect for the future.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Current generation pays cost for reclaiming useful materials from the waste stream, results in positive effect for the future. Largest increase in the amount of materials recovered from recycling should lead to greatest reduction in the use of virgin resources for manufacturing. Improved service distribution effects. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Negative distribution lifestyle and quality of life effect on some local communities, population groups and industries located near a MWP facility. Greatest negative potential effect on future generations due to the potential for residents to reduce or stop separating material; it is a change to a less sustainable behaviour.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Distribution of lifestyle effects	Positive lifestyle distribution effect by increased opportunities of service for multi-family and rural households.		
Potential future generation effects of system	<p>Positive effect through more sustainable use of resources and conservation of the environment for future use/ enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the cost for reclaiming useful materials from the waste stream, results in positive effect for the future.</p> <p>Significant potential negative effect from the reduction in emphasis on individual behaviour and source separation; may result in a shift back to a less sustainable behaviour in the long term.</p>		

TABLE A5.1
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Greater participation with more people using backyard composters and separating out recyclables due to distribution of additional backyard composters and promotion /education program. 	<ul style="list-style-type: none"> Greater participation with maintenance or slight increase in positive attitudes to 3Rs with more people using backyard composters and separating out recyclables due to distribution of additional backyard composters and promotion /education program. Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> As the population grows, the additional people are likely to participate at the same level or rate as present. Future broader social attitudes to 3Rs are likely to positively influence participation. Residents are familiar with the system and are likely to continue to accept it. With increased levels of promotion/education, participation rates could be increased. If current subsidies continue, municipalities and residents are likely to continue to accept the costs of the system.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Maintain or possible slight increase in current positive attitudes to 3Rs due to expansion of household composting, promotion/ education and increased use of reuse centres. Possible future concerns about the cost of leaf and yard waste collection and composting. 		<u>Disadvantages</u> <ul style="list-style-type: none"> With the existing/committed there will not be enough incentive/opportunity to encourage people to become active enough to achieve higher levels of 3Rs.
Willingness to pay	<ul style="list-style-type: none"> Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. 		<ul style="list-style-type: none"> Reduction and reuse are not emphasized to the fullest extent possible.

TABLE A5.2
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs System	Greater participation with more people using backyard composters and distribution of additional backyard composters and promotion /education program.	Greater participation as population grows with slight increase in positive 3Rs attitudes due to increase in household composting, effects of promotion/ education program and some increase in the availability of used goods.	<u>Advantages</u> <ul style="list-style-type: none"> Should increase participation above the level that could be achieved by the existing system. Residents are familiar with the system and are likely to accept it because it does not involve any radical changes.
Attitudes and perceptions toward 3Rs activities	Maintain or possible slight increase in current positive attitudes to 3Rs due to expansion of household composting, promotion/ education and increased use of reuse centres.	Generally, municipalities and residents are likely to accept future costs of the System although the costs versus the benefits of leaf and yard waste collection may be a concern.	<ul style="list-style-type: none"> With more concerted effort on promotion/education, participation rates could be increased. Municipalities and residents are likely to accept the costs of the system if current subsidies continue. Minor increase in advantages over existing due to committed initiatives, but not enough to affect overall comparison.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods.</p>		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> There will not be enough incentive/opportunity to encourage people to become active enough in 3Rs to achieve higher levels of waste reduction. Reduction and reuse are not emphasized to the extent possible.

TABLE A5.3
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost) and distribution of additional backyard composters, potential economic motivation because of direct cost and enhanced promotion/education program.</p> <p>In the short term some individuals and groups may not participate fully in the direct cost system due to initial opposition although in the longer term participation is likely to increase.</p> <p>Public education, consultation, and design of the particular direct cost system will address many of these concerns.</p> <p>Potential for higher contamination rates of Blue Box as households place non-recyclables in Blue Box to reduce amount of garbage.</p> <p>Potential for increase in illegal dumping and incineration by households, particularly in rural areas.</p>	<p>Potential for significant opposition to direct cost in some municipalities due to the cost, complexity and public opposition to the system in the short term. Adaptation and participation will increase, but it may be too controversial in some municipalities.</p> <p>Increase in positive attitudes likely due to greater involvement in 3Rs and efforts to reduce household garbage.</p> <p>Greater participation in 3Rs as the population grows and people make additional efforts to reduce their waste.</p> <p>Potential for higher contamination rates in Blue Box and illegal dumping/incineration by households.</p> <p>Direct cost in high-density housing probably likely to have less effect on participation because of lack of individual economic incentive to participate in 3Rs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential to encourage higher 3Rs participation than the existing and existing/committed systems. Potential to encourage people to change their waste management attitudes/behaviour by becoming more aware of what they throw out. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for direct cost systems to be very controversial in some or all local municipalities. The system could be too complex for some local municipalities to implement and administer. Potential for higher contamination of blue box. Unlikely to significantly affect high density housing participation in 3Rs. Composting in high-rise households may not be effective.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<p>The administration and implementation of direct cost might be complex and difficult, precluding participation by some municipalities in the region. Co-operation in the region to share expertise and knowledge may remove some implementation barriers.</p> <p>Direct cost in high-density housing is likely to have less effect on participation, because of lack of individual economic incentive to participate in 3Rs.</p> <p>Participation in vermicomposting may be limited due to lack of success of vermicomposting and only about 8% of the residential units in Durham are high rise.</p>	<p>Potential difficulty in expanding composting in multi-family units if odour and insect problems occur.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting, promotion/education and increased use of reuse centres.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods.</p> <p>Possible future concerns about the cost of leaf and yard waste</p> <p>Those paying at lower rate because they reduce may resent the payment, less they see that they are paying less due to their own positive behaviour.</p> <p>Willingness to pay for garbage processing will depend on the pricing.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and perceptions toward 3Rs activities</p>	<p>Initially, there will be negative attitudes on the part of public to any type of direct cost system. It may be viewed by the public as an additional "tax" on citizens. This attitude may change by implementing a direct cost system designed specifically for Durham region. Public education and consultation will also be important to enhancing positive attitudes. The householders should be shown how waste management costs are reduced on their property taxes.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting, promotion/education and increased use of reuse centres.</p> <p>Potential for multi-family residents to object to composting if odour, and insect problems occur. Mitigation to include proper design of collection system for apartment building owners, managers, and dwellers.</p> <p>In longer term, high participation households may perceive a distinct financial advantage over lower participating households, increasing their enthusiasm for the initiative.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. The costs to the municipality of a direct cost system may outweigh the benefits. Potential for the system to be seen as a regressive tax system affecting lower income groups the most. Mitigation could include free or subsidized collection for lower income households. Those paying at lower rate because they reduce, may resent the payment less, because they see that they are paying less due to their own positive behaviour. Those who may oppose direct cost may be willing to pay for garbage pick-up/disposal if their taxes are reduced by the normal garbage processing costs attributed to their household. 		

TABLE A5.4
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost) and separating out more recyclables due to expanding materials collected in blue box, distribution of additional backyard composters and enhanced by promotion and education program.</p> <p>Provision of recycling services to all multi-family buildings of greater than 6 units will increase the participation of multi-family, and lower income groups.</p>	<p>Greater participation in 3Rs as population grows and more 3Rs services are provided (additional Blue Box materials, composters, promotion/education).</p> <p>Possible difficulty in expanding composting in multi-family units if odour and insect problems occur. Vermicomposting unlikely to increase absolute numbers of participants significantly as only about 8% of households are multi-family households. Proper design of collection systems and a system of choice for apartment building owners, managers and dwellers will be important.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Expanded Blue Box System does not require a radical altering of 3Rs attitudes and behaviours. People currently understand, support and participate in all the traditional components (Blue Box, backyard composters, etc.) of a Blue Box System. The low density residential nature and homogenous ethnic make-up of Durham are suitable for this system. Municipalities are familiar with the strengths and weaknesses of traditional Blue Box Systems. If there are subsidies from either the province or the private sector, there is likely to be continual municipal support. If subsidies are not available for this type of system, it may become a disadvantage for financial reasons.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Increase in current positive attitudes to 3Rs due to expansion of blue box and provision of recycling and composting service to multi-family households, household composting, promotion/education and increased use of reuse centres.</p> <p>Potential for multi-family residents to object to composting if odour, and insect problems occur.</p> <p>Positive attitude towards recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose the system for their building.</p>	<p>Municipalities may be willing to participate in and financially support the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to maintain and expand the Blue Box.</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p>	<p><u>Disadvantages</u></p> <p>A minor disadvantage is that recycling and composting in high density housing types has had only limited success. However, Durham has only a minor proportion of high density development.</p> <p>If the Blue Box program is not subsidized by the private/public sector, municipalities may cut back service to reduce overall costs.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages, by Criterion
Willingness to pay	<p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. Unknown if residents are willing to pay higher cost for composters or if those who don't have them now are willing or able to pay current cost.</p> <p>Municipalities may be willing to pay for the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to continue and expand Blue Box.</p>		

TABLE A5.5
SYSTEM NET EFFECTS TABLE : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: DURHAM REGION

SYSTEM

: WET/DRY

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Wet/Dry Systems require high levels of participation to prevent contamination of wet and dry streams. The highest levels of participation are most likely in single-family residences because of low turnover and greater amount of storage space than multiple-family residences.</p> <p>It is difficult to predict the level of participation in a wet/dry system in Durham. It is possible that the Durham region may be comparable to Guelph which undertook a wet/dry pilot (62% diversion of the residential waste stream). Participation could be enhanced through education, personal contact and public consultation.</p> <p>Recycling legislation forces participation in the short term although it is likely some residents will not support it. In the longer term, it is likely to become more acceptable particularly if public consultation and education are included.</p>	<p>Due to very limited North American experience with Wet/Dry Systems, it is difficult to predict attitudes and level of participation on the part of citizens. A Wet/Dry System has the potential to divert a significant quantity of the residential waste stream (approximately 60%), but it requires diligent source separation on the part of citizens. If a high enough level of household source separation are not achieved, the "dry" and "wet" streams could be severely contaminated, leading to poor compost quality and extensive sorting of dry recyclables.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Appears suitable in low density urban areas of Durham The ethnic homogeneity of Durham suggests that promotion/education program could be effective. Acceptance of other 3Rs activities in Durham. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> To be effective, this system requires a change of resident waste management behaviour. They must separate all food waste and store it for one week. An extensive transition period may be required. Rural residents are likely to have difficulty participating.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<p>Current participation in backyard composting is high and is expected to be high in Durham because of a significant proportion of single-family dwellings. Overall rate of use may decline as others acquiring composters later may not be dedicated to its use or those with composters sort their waste into the "wet" stream.</p> <p>If HHW depot is not convenient, it may lead to decreased participation.</p>	<p>Attaining high levels of participation will be difficult with the following groups of people in Durham: elderly and disabled, apartment residents and possibly other multiple-family dwellings, and rural residents. Participation could be enhanced through high levels of education, information provision, personal contact and public consultation.</p> <p>There is likely to be resistance from apartment owners and managers because of potential nuisance effects and cost issues.</p> <p>The willingness of municipalities to pay the costs of the wet/dry system are unknown.</p> <p>Existing and new compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste including meat waste from the wet/dry system may aggravate the effects and lead to more negative attitudes on the part of citizens.</p>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Attaining high levels of participation will be difficult with the following groups in Durham: elderly and disabled, apartment residents and possibly other multiple-family dwellings and rural residents. Residential may not separate their food waste as diligently, particularly in winter and may "contaminate" the garbage stream. Additional odour and health effects could occur at composting facilities. Potential for reduced participation by some groups due to greater difficulty using 90 gal. bins.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and perceptions toward 3Rs activities</p>	<ul style="list-style-type: none"> There is no data of a North American wet/dry system in medium to high density urban areas. There would likely be significant opposition to the implementation of a wet/dry system from building owners/managers because of potential for vermin, insects, odours, hygiene concerns and potential cost. Some concerns may be addressed by developing various alternative systems for large apartments. Potentially unacceptable for medium to high density development. The need to source separate in a bin system may cause significant odours in individual apartments and buildings. Residents, particularly elderly may not be accepting of a 3-stream Wet/Dry System, if inconveniences such as odour, waste sticking to bin, and moving 90 gallon bins in winter are extensive. Existing compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste from the wet/dry system may aggravate the problems and lead to more negative attitudes. Household composting is acceptable in single-family residences. Level of acceptance in multi-family residences is unknown. General acceptance of leaf and yard waste collection. 	<ul style="list-style-type: none"> Region and residents are likely to continue to accept and support 3Rs promotion and education. Recycling legislation forces participation in the short term, although it is likely some residents will not support it. In the longer term, it is likely to become more acceptable. Support, participation and willingness to pay up to 1/3 of the cost by residents for composters is likely to continue, in particular with single-family residences. Level of acceptance and participation in multiple-family residences is uncertain but likely to be low. Support, participation and willingness to pay for leaf and yard waste collection is likely to continue in the short term. In the long term concern about the cost and benefit may become an issue. If HHW depot is not convenient it may lead to decreased participation. Reuse centres are supported and viewed as socially and environmentally beneficial. 	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Building owners/managers may be unwilling to provide wet/dry services to tenants due to costs.</p> <p>The willingness of municipalities to pay the costs of the wet/dry system are unknown. Municipalities may be hesitant to participate in Wet/Dry system because of potentially higher costs.</p> <p>Additional costs of leaf and yard waste collection and composting are currently acceptable to residents but costs may become an issue in the future.</p> <p>A proportion of residents in each municipality are willing to pay one-third the cost of backyard composters and appear willing to accept municipal expenditures for education and promotion. Uncertain of acceptance of higher costs, for composters or for those who have not purchased a composter.</p> <p>Some people are willing to purchase used goods. If centres become convenient and shopping experiences acceptable, more people may be willing to pay for used items.</p> <p>The region and residents are likely to continue to support 3Rs promotion and education.</p>		

TABLE A5.6
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Durham Region
SYSTEM : Residential Mixed Solid Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation may be possible with more people using household composters, distribution of additional backyard composters and promotion /education program.</p> <p>Some residents are likely to decide not to source separate some or all of their recyclables and food waste knowing that it will be separated for them at the central mixed waste processing and composting (MWP) facility. (Magnitude is uncertain)</p> <p>Mixed waste processing conflicts with a philosophy of personal involvement in 3Rs; some municipalities may not want to be involved on that basis.</p>	<p>Significant odour effects/concerns and possible health concerns with the processing and composting facility.</p> <p>Change in participation in household source separation of materials is uncertain. Over time there could be a reduction in household participation due to provision of separation at the MWP facility.</p> <p>Municipalities and residents may not be willing to pay for the construction and/or operation of the mixed waste processing and composting facility due to odour and health concerns and they have future concerns about the costs versus the benefits of leaf and yard waste collection.</p>	<p><u>Advantages</u></p> <p>The opportunities for individual/community participation in composting but will be the same as direct cost, expanded blue box and wet/dry and greater than the existing and existing/committed.</p> <p><u>Disadvantages</u></p> <p>Significant odour problems and potential public and occupational health concerns may make the MWPC facility unacceptable to the public, employees and/or the municipality and may result in restricted use or closure of the facility.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Possible slight increase in current positive attitudes to 3Rs due to expansion of household composting, promotion/ education and increased use of reuse centres.</p> <p>Potential for significant opposition to the mixed waste processing and composting facility due to odour effects (perceived and actual) and public and occupational health concerns.</p>		<p><u>Disadvantages</u></p> <p>Some residents may not source separate their recyclables and food waste (for household composting) knowing that the garbage will be sorted for them at the MWPC facility. This could have a negative effect on the use of other components of the system and decrease support for 3Rs in the long run.</p>
Willingness to pay	<p>Municipalities may not be willing to contribute to the high capital and operating costs of the processing and composting facility.</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting and the willingness of residents and municipalities to pay for collection and processing.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods.</p>		<p>Municipalities and the province may be unwilling/unable to pay the high capital costs for the mixed waste processing system.</p> <p>Potential for higher contamination of recyclables than the other systems may reduce the usability of the recyclables.</p>

TABLE A6.1
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Participation is limited by a lack of opportunities for multi-family residents. (Less participation by high rise, high and medium density multi-family buildings.) Opportunities to participate by provision of domes and igloos. 	<ul style="list-style-type: none"> Participation rate generally considered favourable but unlikely to improve significantly due to lack of or limited opportunities for many households in apartment buildings. Possible future concerns about the cost of leaf and yard waste collection and composting. Residents willing to pay for subsidized backyard composters, and to purchase used goods. Residents and region appear to accept cost. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> As the population grows, the incremental population is likely to participate at a somewhat higher rate than present, due to future positive social attitudes to 3Rs. Residents are familiar with the system and are likely to continue to accept it. If current subsidies continue, municipalities and residents are likely to continue to accept the costs of the system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> With the existing system there will not be enough incentive/opportunity to encourage people to become active enough to achieve higher levels of 3Rs participation.
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Programs generate positive attitudes. Those who participate appear to believe they are contributing. The Region is intent on encouraging individual action. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Residents willing to pay for subsidized backyard composters and to purchase used goods. Possible future concerns about the cost of leaf and yard waste collection and composting. 		<u>Disadvantages</u> <ul style="list-style-type: none"> Recycling, reduction and reuse are not emphasized to the fullest extent possible. This system lacks opportunities for the significant population that lives in Metro in high-density housing types (e.g. high rises).

TABLE A6.2
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Metro Toronto

SYSTEM

: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs System	<p>Greater participation with more people using backyard composters (backyard and vermi composters) and separating out more recyclables due to distribution of additional backyard composters, increased recycling opportunities, and promotion/education program.</p> <p>Provision of recycling services to all multi-family buildings of greater than 6 units will increase the participation rate in Metro.</p>	<p>Greater participation as population grows with slight increase in positive 3Rs attitudes due to increase in household composting, increased recycling opportunities for single and multi-family residents, effects of promotion/education program, and increase in the availability of used goods.</p> <p>Generally, municipalities and residents are likely to accept future costs of the System although the costs/benefits of leaf and yard waste collection may be a concern.</p> <p>Possible difficulty in expanding composting in multi-family units if odour and insect problems occur.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Increase in participation above the level that could be achieved by the existing system because of addition of multi-family. Residents are familiar with the system and are likely to accept it because it does not involve any radical changes and is likely to encourage greater individual action. With more concerted effort on promotion/education particularly for multi-family households and individuals, participation rates could be increased. Municipalities and residents are likely to accept the costs of the system. Suitable to high density housing.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Current positive attitudes to 3Rs is likely to increase due to expansion of household composting, promotion/education, increased use of reuse centres and incorporation of multi-family/high rise households. Potential for residents of multi-family households to object to composting if odour and insect problems occur. Positive attitude toward recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose the system for their building. 		<u>Disadvantages</u> <ul style="list-style-type: none"> There will not be enough incentive/opportunity to encourage people to become active enough in 3Rs to achieve higher levels of waste reduction. Reduction and reuse are not emphasized to the extent possible.
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters and may be more willing to purchase used goods. Residents and municipalities likely willing to pay for the system if current subsidies continue. 		

TABLE 6.3
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost) and distribution of additional Blue Boxes composters, potential economic motivation because of direct cost and enhanced promotion/education program.</p> <p>In the short term some individuals and groups may not participate fully in the direct cost system due to initial opposition although in the longer term participation is likely to increase. Public education, consultation, and design of the particular direct cost system will address many of these concerns.</p> <p>Potential for higher contamination rates of Blue Box as households place non-recyclables in Blue Box to reduce amount of garbage.</p> <p>Potential for increase in illegal dumping and incineration by households.</p>	<p>Potential for significant opposition to direct cost in some municipalities due to the cost, complexity and public opposition to the system in the short term. Adaptation and participation will increase, but it may be too controversial in some municipalities.</p> <p>Increase in positive attitudes likely due to greater involvement in 3Rs and efforts to reduce household garbage.</p> <p>Greater participation in 3Rs as the population grows and people make additional efforts to reduce their waste.</p> <p>Potential for higher contamination rates in Blue Box and illegal dumping/incineration by households.</p> <p>Direct cost in high-density housing probably likely to have less effect on participation because of lack of individual economic incentive to participate in 3Rs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential to encourage higher 3Rs participation than the existing and existing/committed systems. Potential to encourage people to change their waste management attitudes/behaviour by becoming more aware of what they throw out. Cost advantages to the municipality if the revenue remains in waste management system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for direct cost systems to be very controversial in some or all local municipalities. The system could be too complex for some local municipalities to implement and administer. Need for continued education and consultation. Potential for higher contamination of blue box.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<p>Any type of direct cost system implemented in a region where there is a significant proportion of high rise buildings (like Metro) is likely to meet with mixed success. A direct cost system intends to change waste management behaviour by adding an individual economic incentive. This incentive does not exist in buildings of multiple units, unless there is broadly-based co-operation.</p> <p>As Metro has a high proportion of this type of residence, compared to the other regions, direct cost will probably not in and of itself attain equal levels of participation.</p> <p>Provision of recycling services to all multi-family buildings of greater than 6 units will increase the participation of multi-family, and lower income group.</p> <p>The administration and implementation of direct cost might be complex and difficult, precluding participation by some municipalities in the region. Co-operation in the region to share expertise and knowledge may remove some implementation barriers.</p> <p>Participation in vermicomposting may be limited due to lack of success of vermicomposting.</p>	<p>Potential difficulty in expanding composting in multi-family units if odour and insect problems occur.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting, promotion/education and increased use of reuse centres.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods.</p> <p>Possible future concerns about the cost of leaf and yard waste</p> <p>Those paying at lower rate because they reduce may resent the payment, less they see that they are paying less due to their own positive behaviour.</p> <p>Willingness to pay for garbage processing will depend on the pricing.</p>	<p><u>Disadvantages</u></p> <p>Unlikely to significantly affect high density housing participation in 3Rs. Composting in high rise households may not be effective.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<p>The ethnic and language diversity of Metro would make the implementation of a direct cost system somewhat more complex and may require a more extended period of time to achieve equivalent levels of participation as more homogenous region.</p>		
Attitudes and perceptions toward 3Rs activities	<p>Initially, there will be some negative attitudes on the part of the public to a direct cost system. It may be viewed by the public as an additional "tax" on citizens. This attitude may change by implementing a direct cost system designed specifically for Metro region. Public education and consultation will also be important to enhancing positive attitudes. The householders should be shown how waste management costs are reduced on their property taxes.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting, promotion/ education and increased use of reuse centres.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Potential for multi-family households to object to composting if odour, and insect problems occur. Mitigation to include proper design of collection system for apartment building owners, managers, and dwellers.</p> <p>In longer term, high participating households may perceive a distinct financial advantage over lower participating households, increasing their enthusiasm for the initiative.</p> <p>Positive attitude toward recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods.</p> <p>Potential for the system to be seen as a regressive tax system affecting lower income groups the most. Mitigation could include free or subsidized collection for lower income households.</p> <p>After the phase in period households are likely to realize the benefit of diverting their waste through lower costs.</p> <p>Those who may oppose direct cost may be willing to pay for garbage pick-up/disposal if their taxes are reduced by the normal garbage processing costs attributed to their household.</p>		

TABLE A6.4
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost) and separating out more recyclables due to expanding materials collected in blue box, distribution of additional backyard composters and enhanced by promotion and education program.</p> <p>Provision of recycling services to all multi-family buildings of greater than 6 units should significantly increase the level of participation in Metro.</p>	<p>Greater participation in 3Rs as population grows and more 3Rs services are provided.</p> <p>Possible difficulty in expanding composting in multi-family units if odour and insect problems occur. Proper design of collection systems and a system of choice for apartment building owners, managers and dwellers will be important.</p> <p>Municipalities may be willing to participate in and financially support the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to maintain and expand the Blue Box.</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Expanded Blue Box System does not require a radical altering of 3Rs attitudes and behaviours. People currently understand, support and participate in all the traditional components (Blue Box, backyard composters, etc.) of a Blue Box System. Municipalities are familiar with the strengths and weaknesses of traditional Blue Box Systems. If there are subsidies from either the province or the private sector, there is likely to be continual municipal support. If subsidies are not available for this type of system, it may become a disadvantage for financial reasons. Metro region already has a well established infrastructure for a Blue Box System.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Increase in current positive attitudes to 3Rs due to expansion of blue box and provision of recycling and composting service to multi-family households, household composting, promotion/ education and increased use of reuse centres. Potential for multi-family residents to object to composting if odour, and insect problems occur. Positive attitude towards recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose the system for their building. 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> A minor disadvantage is that participation in recycling and composting in high density housing is uncertain. If the Blue Box program is not subsidized by the private/public sector, municipalities may cut back service to reduce overall costs.
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. Unknown if residents are willing to pay higher cost for composters or if those who don't have them now are willing or able to pay current cost. Municipalities may be willing to pay for the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to continue and expand Blue Box. Possible concern on the part of high-rise owners/tenants on the costs of recycling and composting infrastructure. 		

TABLE A6.5
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Metro Toronto

SYSTEM

: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Wet/Dry Systems require high levels of commitment by participants to prevent contamination of wet and dry streams. The highest levels of participation and commitment are most likely in single-family residences because of low turnover and greater amount of storage space than multiple-family residences.</p> <p>It is difficult to predict the level of participation in a wet/dry system in Metro. High participation rates would probably be difficult in apartments/high rises. Participation could be enhanced through education, personal contact and public consultation but due to the demographic and housing context, participation rates in Metro would probably be lower than other regions in the GTA.</p> <p>Due to the ethnic and language diversity of Metro, greater efforts in promotion, consultation and public education will be required to attain higher levels of participation because of the changes for wet/dry.</p>	<p>Due to very limited North American experience with Wet/Dry Systems, it is difficult to predict attitudes and level of participation on the part of citizens. A Wet/Dry System has the potential to divert a significant quantity of the residential waste stream (approximately 60%), but it requires diligent source separation on the part of citizens. If a high enough level of household source separation are not achieved, the "dry" and "wet" streams could be severely contaminated, leading to poor compost quality and extensive sorting of dry recyclables.</p> <p>Due to the preponderance of high rises in Metro it is doubtful that a wet/dry system would be feasible. Separation of garbage and dry recyclables would probably be feasible.</p> <p>Attaining high levels of participation will be difficult with the following groups of people in Metro: elderly and disabled, apartment residents and possibly other multiple-family dwellings. Participation could be enhanced through high levels of education, information provision, personal contact and public consultation.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Appears suitable in low density urban areas of Metro. Acceptance of other 3Rs activities in Metro. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> To be effective, this system requires a change of resident waste management behaviour. Residents must separate all food waste and store it for one week. An extensive transition period may be required. Attaining high levels of participation will be difficult with the following groups in Metro: elderly and disabled, apartment residents and possibly other multiple-family dwellings.
Participation in 3Rs	<p>Current participation in backyard composting is high and is expected to be high in Metro because of a significant proportion of single-family dwellings. (Overall rate of use is likely to decline as others acquiring composters later may not be dedicated to its use or those with composters sort their waste into the "wet" stream.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and perceptions toward 3Rs activities</p>	<ul style="list-style-type: none"> There is no data on a North American wet/dry system in medium to high density urban areas. There would likely be some opposition to the implementation of a wet/dry system from building owners/managers and residents because of potential for vermin, insects, odours, hygiene concerns and potential cost. Some concerns may be addressed by developing various alternative systems for large apartments or arrange for increased frequency of removal. Probably unacceptable in multi-family units. It is doubtful that tenants will keep the 3 streams in their apartment for a period of time that would be suitable to generate a significant quantity of waste for the bags or there may be concern about the use of many bags for small amounts of waste. Residents, particularly elderly and disabled may not accept a 3-stream Wet/Dry System, if inconveniences such as odour, waste sticking to bin, and moving 90 gallon bins in winter are extensive. Existing compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste from the wet/dry system may aggravate the problems and lead to more negative attitudes. Household composting is acceptable in single-family residences. Level of acceptance in multi-family residences is unknown. General acceptance of leaf and yard waste collection. Reuse centres reinforce positive attitudes to 3Rs. 	<ul style="list-style-type: none"> There is likely to be resistance from apartment owners and managers because of potential nuisance effects and cost issues. The willingness of municipalities to pay the costs of the wet/dry system are unknown. Additional odour and health effects could occur at composting facilities. Existing and new compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste including meat waste from the wet/dry system may aggravate the effects and lead to more negative attitudes on the part of citizens. Region and residents are likely to continue to accept and support 3Rs promotion and education. Support, participation and willingness to pay up to 1/3 of the cost by residents for composters is likely to continue. Support, participation and willingness to pay for leaf and yard waste collection is likely to continue in the short term. In the long term concern about the cost and benefit may become an issue. Reuse centres are supported and viewed as socially and environmentally beneficial. 	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Residents may not separate their food waste as diligently, particularly in winter and may "contaminate" the garbage or recycle streams. Potential for a variety of inconveniences which may reduce its popularity. Acceptability of the system may be affected by odour, health and vermin effects from food waste composting facilities

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Building owners/managers may be unwilling to provide wet/dry services to tenants due to costs.</p> <p>The willingness of municipalities to pay the costs of the wet/dry system are unknown. Municipalities may be hesitant to participate in Wet/Dry system because of potentially higher costs.</p> <p>Additional costs of leaf and yard waste collection and composting are currently acceptable to residents but costs may become an issue in the future.</p> <p>A proportion of residents in each municipality are willing to pay one-third the cost of backyard composters and appear willing to accept municipal expenditures for education and promotion.</p> <p>Uncertain of acceptance of higher costs for composters or for those who have not purchased a composter.</p> <p>Some people are willing to purchase used goods. If centres become convenient and shopping experiences acceptable, more people may be willing to pay for used items.</p> <p>The region and residents are likely to continue to support 3Rs promotion and education.</p>		

TABLE A6.6
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Metro Toronto
SYSTEM : Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Greater participation may be possible with more people using household composters, distribution of additional backyard composters, increased recycling and promotion /education program. Some residents are likely to decide not to source separate some or all of their recyclables and food waste knowing that it will be separated for them at the central mixed waste processing and composting facility. (Magnitude uncertain) Mixed waste processing conflicts with a philosophy of personal involvement in 3Rs; some municipalities may not want to be involved on that basis. Provision of recycling services to all multi-family buildings of greater than 6 units should increase the level of participation in Metro. 	<ul style="list-style-type: none"> Significant odour effects/concerns and possible health concerns with the processing and composting facility. Change in participation in household source separation of materials is uncertain. Over time there could be a reduction in household participation due to provision of separation at the MWPC facility. Municipalities and residents may not be willing to pay for the construction and/or operation of the mixed waste processing and composting facility due to odour and health concerns. Concerns about the future costs/benefits of leaf and yard waste collection. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Level of participation in composting is equal to direct cost, expanded blue box, and wet/dry but greater than existing. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Significant odour problems and potential public and occupational health concerns may make the MWP facility unacceptable to the public, employees and/or the municipality and may result in restricted use or closure of the facility. Potential for higher contamination of recyclables than the other systems because people are unable, unwilling or lack knowledge to source separate properly.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Positive attitude towards recycling in multi-family buildings likely to be enhanced by allowing apartment owners managers to choose the system for their building.</p> <p>Possible slight increase in current positive attitudes to 3Rs due to expansion of household composting and recycling facilities, promotion/education increased use of reuse centres and incorporation of multi-family/high rise households.</p> <p>Potential for significant opposition to the mixed waste processing and composting facility due to odour effects and public and occupational health concerns (perceived and actual).</p>	Possible difficulty in expanding composting multi-family units if odour and insect problems occur. Proper design of collection systems and a system of choice for apartment building owners, managers and dwellers will be important.	<p><u>Disadvantages</u></p> <p>Some residents may not source separate their recyclables and food waste (for household composting) knowing that the garbage will be sorted for them at the MWP facility. This could have a negative effect on the use of other components of the system and decrease support for 3Rs in the long run.</p> <p>Municipalities and the province may be unwilling to pay the high capital costs for the mixed waste processing system.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Municipalities likely to be unwilling to contribute to the high capital and operating costs of the processing and composting facility. Possible future concerns about the cost of leaf and yard waste collection and composting and the willingness of residents and municipalities to pay for collection and processing. Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. Unknown if residents are willing to pay higher cost for composter or if those who don't have them now are willing or able to pay current cost. Possible concern on the part of high rise owners/tenants on the cost of recycling and composting infrastructure. 		

TABLE A7.1
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	Participation rate generally considered favourable but unlikely to improve significantly due to lack of opportunities.	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents willing to pay for subsidized backyard composters, and to purchase used goods. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> As the population grows, the incremental population is likely to participate at the same rate as present. Future broader social attitudes to 3Rs are likely to improve participation. Residents are familiar with the system and are likely to continue to accept it. If current subsidies continue, municipalities and residents are likely to continue to accept the costs of the system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> With the existing/committed there will not be enough incentive/opportunity to encourage people to become active enough to achieve higher levels of 3Rs. Reduction and reuse are not emphasized to the fullest extent possible.
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Current programs are generating positive attitudes. Possible future concerns about the cost of leaf and yard waste collection and composting. 		
Willingness to pay	Residents willing to pay for subsidized backyard composters and to purchase used goods.		

TABLE A7.2
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Peel Region

SYSTEM : Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs System	<ul style="list-style-type: none"> Greater participation with more people using backyard composters and separating recyclables due to distribution of additional backyard composters, increased recycling opportunities, promotion/education program and incorporation of multi-family/high rise households. 	<ul style="list-style-type: none"> Greater participation as population grows with slight increase in positive 3Rs attitudes due to increase in household composting, increased recycling opportunities, effects of promotion/ education program, increase in the availability of used goods and incorporated of multi-family/high rise households. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Should increase in participation above the level that could be achieved by the existing system. Residents are familiar with the system and are likely to accept it because it does not involve any radical changes. With more concerted effort on promotion/education, participation rates could be increased. Municipalities and residents are likely to accept the costs of the system, if current subsidies continue. Minor increase in advantages over existing due to committed initiatives, but not enough to affect overall comparison. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> There will not be enough incentive/opportunity to encourage people to become active enough in 3Rs to achieve higher levels of waste reduction. Reduction and reuse are not emphasized to the extent possible.
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Current positive attitudes to 3Rs are likely to increase due to expansion of household composting, promotion/ education, increased use of reuse centres and incorporation of multi-family/high rise households. 	<ul style="list-style-type: none"> Generally, municipalities and residents are likely to accept future costs of the system although the costs/benefits of leaf and yard waste collection may be a concern. 	
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters and may be more willing to purchase used goods. 		

TABLE A7.3
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Peel Region

SYSTEM : Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost) and distribution of additional Blue Boxes composters, potential economic motivation because of direct cost and enhanced promotion/education program.</p> <p>In the short term some individuals and groups may not participate fully in the direct cost system due to initial opposition although in the longer term participation is likely to increase. Public education, consultation, and design of the particular direct cost system will address many of these concerns.</p> <p>Potential for higher contamination rates of Blue Box as households place non-recyclables in Blue Box to reduce amount of garbage.</p> <p>Potential for increase in illegal dumping and incineration by households, particularly in rural areas.</p>	<p>Potential for significant opposition to direct cost in some municipalities due to the cost, complexity and public opposition to the system in the short term. Adaptation and participation will increase, but it may be too controversial in some municipalities.</p> <p>Increase in positive attitudes likely due to greater involvement in 3Rs and efforts to reduce household garbage.</p> <p>Greater participation in 3Rs as the population grows and people make additional efforts to reduce their waste.</p> <p>Potential for higher contamination rates in Blue Box and illegal dumping/incineration by households.</p> <p>Direct cost in high-density housing probably likely to have less effect on participation because of lack of individual economic incentive to participate in 3Rs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential to encourage higher 3Rs participation than the existing and existing/committed systems. Potential to encourage people to change their waste management attitudes/behaviour by becoming more aware of what they throw out, and by providing more households with composters than systems 1, 2 and probably 6. Costs acceptable to residents and municipality if current subsidies continue. Potential revenue gain from materials may offset costs. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for direct cost systems to be very controversial in some or all local municipalities. The system could be too complex for some local municipalities to implement and administer.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<ul style="list-style-type: none"> Provision of recycling services to all multi-family buildings of greater than 6 units will increase the participation of multi-family, and lower income groups. The administration and implementation of direct cost might be complex and difficult, precluding participation by some municipalities in the region. Co-operation in the region to share expertise and knowledge may remove some implementation barriers. Direct cost in high-density housing is likely to have less effect on participation, because of lack of individual economic incentive to participate in 3Rs. Participation in vermicomposting may be limited due to lack of success of vermicomposting. 	<ul style="list-style-type: none"> Potential difficulty in expanding composting in multi-family units if odour and insect problems occur. 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for higher contamination of blue box, and for more illegal dumping than other systems. Unlikely to significantly affect high density housing participation in 3Rs. Composting in high rise households may not be effective.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Initially, there will be negative attitudes on the part of public to any type of direct cost system. It may be viewed by the public as an additional "tax" on citizens. This attitude may change by implementing a direct cost system designed specifically for Peel region. Public education and consultation will also be important to enhancing positive attitudes. The householders should be shown how waste management costs are reduced on their property taxes.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting, promotion/ education and increased use of reuse centres.</p> <p>Potential for multi-family dwelling residents to object to composting if odour, and insect problems occur.</p> <p>Mitigation to include proper design of collection system for apartment building owners, managers, and dwellers.</p> <p>In longer term, high participation households may perceive a distinct financial advantage over lower participating households, increasing their enthusiasm for the initiative.</p>	<p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting, promotion/ education and increased use of reuse centres.</p>	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. The costs to the municipality of a direct cost system may outweigh the benefits. Potential for the system to be seen as a regressive tax system affecting lower income groups the most. Mitigation could include free or subsidized collection for lower income households. Those paying at lower rate because they reduce, may resent the payment less, because they see that they are paying less due to their own positive behaviour. Those who may oppose direct cost may be willing to pay for garbage pick-up/disposal if their taxes are reduced by the normal garbage processing costs attributed to their household. 	<ul style="list-style-type: none"> Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. Possible future concerns about the cost of leaf and yard waste Those paying at lower rate because they reduce may resent the payment, unless they see that they are paying less due to their own positive behaviour. Willingness to pay for garbage processing will depend on the pricing. 	

TABLE A7.4
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Greater participation in 3Rs with more people using composters (backyard and vermicompost) and separating out more recyclables due to expanding materials collected in blue box, distribution of additional backyard composters and enhanced by promotion and education program. Provision of recycling services to all multi-family buildings of greater than 6 units will increase the participation of multi-family, and lower income groups. 	<ul style="list-style-type: none"> Greater participation in 3Rs as population grows and more 3Rs services are provided. Possible difficulty in expanding composting in multi-family units if odour and insect problems occur. Proper design of collection systems and a system of choice for apartment building owners, managers and dwellers will be important. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Expanded Blue Box System does not require a radical altering of 3Rs attitudes and behaviours. People currently understand, support and participate in all the traditional components (Blue Box, backyard composters, etc.) of a Blue Box System. Municipalities are familiar with the strengths and weaknesses of traditional Blue Box Systems. If there are subsidies from either the province or the private sector, there is likely to be continual municipal support. If subsidies are not available for this type of system, it may become less effective and a disadvantage for financial reasons. Peel region already has a well established infrastructure for a Blue Box System. Suitable for low, medium and high density areas.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Increase in current positive attitudes to 3Rs due to expansion of blue box and provision of recycling and composting service to multi-family households, household composting, promotion/education and increased use of reuse centres.</p> <p>Potential for multi-family residents to object to composting if odour, and insect problems occur.</p> <p>Positive attitude towards recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose the system for their building.</p>	<p>Municipalities may be willing to participate in and financially support the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to maintain and expand the Blue Box.</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> A minor disadvantage is that participation in recycling and composting in high density housing is uncertain. If the Blue Box program is not subsidized by the private/public sector, municipalities may cut back service to reduce overall costs.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p> <p>Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. Unknown if residents are willing to pay higher cost for composters or if those who don't have them now are willing or able to pay current cost.</p> <p>Municipalities may be willing to pay for the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to continue and expand Blue Box.</p>		

TABLE A7.5
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Peel Region

SYSTEM

: Residential WET/DRY

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Wet/Dry Systems require high levels of participation to prevent contamination of wet and dry streams. The highest levels of participation are most likely in single-family residences because of low turnover and greater amount of storage space than multiple-family residences.</p> <p>It is difficult to predict the level of participation in a wet/dry system in Peel. High participation rates would probably be difficult in apartments/high rises. Participation could be enhanced through education, personal contact and public consultation.</p> <p>Recycling legislation forces participation in the short term although it is likely some residents will not support it. In the longer term, it is likely to become more acceptable particularly if public consultation and education are included.</p> <p>Current participation in backyard composting is high and is expected to be high in Peel because of a significant proportion of single-family dwellings. Overall rate of use may decline as others acquiring composters later may not be dedicated to its use or those with composters sort their waste into the "wet" stream.</p>	<p>Due to very limited North American experience with Wet/Dry Systems, it is difficult to predict attitudes and level of participation on the part of citizens. A Wet/Dry System has the potential to divert a significant quantity of the residential waste stream (approximately 60%), but it requires diligent source separation on the part of citizens. If a high enough level of household source separation is not achieved, the "dry" and "wet" streams could be severely contaminated, leading to poor compost quality and extensive sorting of dry recyclables.</p> <p>Attaining high levels of participation will be difficult with the following groups of people in Peel: elderly and disabled, apartment residents and possibly other multiple-family dwellings, and rural residents. Participation could be enhanced through high levels of education, information provision, personal contact and public consultation.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Appears suitable in low density urban areas of Peel. Acceptance of other 3Rs activities in Peel. Potential for less contamination than system 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> To be effective, this system requires a change of resident waste management behaviour. They must separate all food waste and store it for one week. An extensive transition period may be required. Rural residents are likely to have difficulty participating.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	If IHHW depot is not convenient, it may lead to decreased participation.	<p>There is likely to be resistance from apartment owners and managers because of potential nuisance effects and cost issues.</p> <p>The willingness of municipalities to pay the costs of the wet/dry system are unknown.</p> <p>Existing and new compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste including meat waste from the wet/dry system may aggravate the effects and lead to more negative attitudes on the part of citizens.</p>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Attaining high levels of participation will be difficult with the following groups in Peel: elderly and disabled, apartment residents and possibly other multiple-family dwellings and rural residents. Residents may not separate their food waste as diligently, particularly in winter and may "contaminate" the garbage stream. Additional odour and health effects could occur at composting facilities and storage facilities in apartment buildings. At higher costs, residents and municipalities may be unwilling/unable to pay for the system.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and perceptions toward 3Rs activities</p>	<ul style="list-style-type: none"> There is no data on a North American wet/dry system in medium to high density urban areas. There would likely be significant opposition to the implementation of a wet/dry system from building owners/managers because of potential for vermin, insects, odours, hygiene concerns and potential cost. Some concerns may be addressed by developing various alternative systems for large apartments. Potentially unacceptable for medium to high density development. The need to source separate in a bin system may cause significant odours in individual apartments and buildings. Residents, particularly elderly may not be accepting of a 3-stream Wet/Dry System, if inconveniences such as odour, waste sticking to bin, and moving 90 gallon bins in winter are extensive. Existing compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste from the wet/dry system may aggravate the problems and lead to more negative attitudes. Household composting is acceptable in single-family residences. Level of acceptance in multi-family residences is unknown. General acceptance of leaf and yard waste collection. Reuse centres reinforce positive attitudes to 3Rs. Viewed as socially and environmentally beneficial. 	<ul style="list-style-type: none"> Region and residents are likely to continue to accept and support 3Rs promotion and education. Recycling legislation forces participation in the short term, although it is likely some residents will not support it. In the longer term, it is likely to become more acceptable. Support, participation and willingness to pay up to 1/3 of the cost by residents for composters is likely to continue, in particular with single-family residences. Level of acceptance and participation in multiple-family residences is uncertain but likely to be low. Support, participation and willingness to pay for leaf and yard waste collection is likely to continue in the short term. In the long term concern about the cost and benefit may become an issue. If HHW depot is not convenient it may lead to decreased participation. Reuse centres are supported and viewed as socially and environmentally beneficial. 	

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Building owners/managers may be unwilling to provide wet/dry services to tenants due to costs. The willingness of municipalities to pay the costs of the wet/dry system are unknown. Municipalities may be hesitant to participate in Wet/Dry system because of potentially higher costs. Additional costs of leaf and yard waste collection and composting are currently acceptable to residents but costs may become an issue in the future. A proportion of residents in each municipality are willing to pay one-third the cost of backyard composters and appear willing to accept municipal expenditures for education and promotion. Uncertain of acceptance of higher costs, for composters or for those who have not purchased a composter. Some people are willing to purchase used goods. If centres become convenient and shopping experiences acceptable, more people may be willing to pay for used items. The region and residents are likely to continue to support 3Rs promotion and education. 		

TABLE A7.6
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Peel Region
SYSTEM : Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation may be possible with more people using household composters, distribution of additional backyard composters and promotion /education program.</p> <p>Some residents are likely to decide not to source separate some or all of their recyclables and food waste knowing that it will be separated for them at the central mixed waste processing and composting (MWP) facility. (Magnitude is uncertain)</p> <p>Mixed waste processing conflicts with a philosophy of personal involvement in 3Rs; some municipalities may not want to be involved on that basis.</p>	<p>Significant odour effects/concerns and possible health concerns with the processing and composting facility.</p> <p>Change in participation in household source separation of materials is uncertain. Over time there could be a reduction in household participation due to provision of separation at the MWP facility.</p> <p>Municipalities and residents may not be willing to pay for the construction and/or operation of the mixed waste processing and composting facility due to odour and health concerns and have concerns about the future costs/benefits of leaf and yard waste collection.</p>	<p><u>Advantages</u></p> <p>Level of participation in composting is equal to direct cost, expanded Blue Box, and wet/dry but greater than existing.</p> <p><u>Disadvantages</u></p> <p>Significant odour problems and potential public and occupational health concerns may make the MWP facility unacceptable to the public, employees and/or the municipality and may result in restricted use or closure of the facility.</p>

Criteria/Indicator	System-Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Possible slight increase in current positive attitudes to 3Rs due to expansion of household composting and recycling facilities, promotion/education increased use of reuse centres and incorporation of multi-family/highrise households. Potential for significant opposition to the mixed waste processing and composting facility due to odour effects and public and occupational health concerns (perceived and actual). 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Some residents may not source separate their recyclables and food waste (for household composting) knowing that the garbage will be sorted for them at the MWP facility. This could have a negative effect on the use of other components of the system and decrease support for 3Rs in the long run and may lead to increased contamination. Municipalities and the province may be unwilling to pay the high capital costs for the mixed waste processing system.
Willingness to pay	<ul style="list-style-type: none"> Municipalities may not be willing to contribute to the high capital and operating costs of the processing and composting facility. Possible future concerns about the cost of leaf and yard waste collection and composting and the willingness of residents and municipalities to pay for collection and processing. Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. 		

TABLE A8.1
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Participation rate generally considered favourable but unlikely to improve significantly due to lack of or limited opportunities for some households (apartment buildings and rural). Future residents are likely to participate at a somewhat higher rate due to future positive social attitudes to 3Rs.</p> <p>White goods collection service may lead to high participation.</p> <p>Limited reuse alternatives leads to low participation.</p>	<p>Participation rate generally considered favourable but unlikely to improve significantly due to lack of or limited opportunities for some households (apartment buildings and rural).</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p> <p>Residents willing to pay for subsidized backyard composters, and to purchase used goods.</p> <p>Residents and region appear willing to accept costs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> As the population grows, the incremental population is likely to participate at a somewhat higher rate than at present, future positive social attitudes to 3Rs. Residents are familiar with the system and are likely to continue to accept it. If current subsidies continue, municipalities and residents are likely to continue to accept the costs of the system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> With the existing system there will not be enough incentive/opportunity to encourage people to become active enough to achieve higher levels of 3Rs participation.
Attitudes and perceptions toward 3Rs activities	<p>Programs generate positive attitudes. Those who participate believe they are contributing.</p> <p>The region is intent on encouraging individual action.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Residents willing to pay for subsidized backyard composters and to purchase used goods if available.</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p>		<p><u>Disadvantages</u></p> <p>Recycling, reduction and reuse are not emphasized to the fullest extent possible.</p> <p>This system lacks opportunities for high rise residents.</p>

TABLE A8.2
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs System	<ul style="list-style-type: none"> Small increase in participation with more people using backyard composters, with distribution of additional backyard composters, increased recycling opportunities, provision of recycling services to all multi-family buildings of greater than 6 units. White goods collection service may lead to higher participation. 	<ul style="list-style-type: none"> Greater participation as population grows with slight increase in positive 3Rs attitudes due to increase in household composting and increased recycling opportunities for multi-family residents. Generally, municipalities and residents are likely to accept future costs of the System although the costs/benefits of leaf and yard waste collection may be a concern. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Small increase in participation above the level that could be achieved by the existing system because of addition of multi-family. Residents are familiar with the system and are likely to accept it because it does not involve change to the way they participate. Municipalities and residents are likely to accept the costs of the system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> There will not be enough incentive/opportunity to encourage people to become active enough in 3Rs to achieve higher levels of waste reduction. Reduction and reuse are not emphasized to the extent possible. There is no strong education/promotion program.
Attitudes and perceptions toward 3Rs activities	<ul style="list-style-type: none"> Current positive attitudes to 3Rs is likely to increase due to expansion of household composting and provision of services to multi-family/high rise households. Positive attitude toward recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose the system for their building. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters and may be more willing to purchase used goods. Residents and municipalities likely willing to pay for the system if current subsidies continue. 		

TABLE A8.3
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: York Region

SYSTEM

: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost), distribution of additional Blue Boxes, potential economic motivation because of direct cost and enhanced promotion/education program.</p> <p>In the short term some individuals and groups may not participate fully in the direct cost system due to initial opposition although in the longer term participation is likely to increase. Public education, consultation, and design of the particular direct cost system will address many of these concerns.</p> <p>Potential for higher contamination rates of Blue Box as households place non-recyclables in Blue Box to reduce amount of garbage.</p> <p>Potential for increase in illegal dumping and incineration by households, particularly in rural areas of York Region.</p>	<p>Potential for significant opposition to direct cost in some municipalities due to the cost, complexity and public opposition to the system in the short term. Adaptation and participation will increase, but it may be too controversial in some municipalities.</p> <p>Increase in positive attitudes likely due to greater involvement in 3Rs and efforts to reduce household garbage.</p> <p>Greater participation in 3Rs as the population grows and people make additional efforts to reduce their waste.</p> <p>Potential for higher contamination rates in Blue Box and illegal dumping/incineration by households.</p> <p>Direct cost in high-density housing probably likely to have less effect on participation because of lack of individual economic incentive to participate in 3Rs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential to encourage higher 3Rs participation than the existing and existing/committed systems. Potential to encourage people to change their waste management attitudes/behaviour by becoming more aware of what they throw out. Cost advantages to the municipality if the revenue remains in the waste management system. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for direct cost systems to be very controversial in some or all local municipalities. The system could be too complex for some local municipalities to implement and administer. Potential for higher contamination of blue box.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<p>Participation is also likely to be high because direct cost is suited to the housing context of York Region (preponderance of single family dwellings). The high degree of home ownership probably indicates a lower turnover rate, which also should lead to a higher participation rate.</p> <p>Provision of recycling services to all multi-family buildings of greater than 6 units will increase the participation of multi-family (small proportion of households) and lower income groups.</p> <p>The administration and implementation of direct cost might be complex and difficult, precluding participation by some municipalities in the region. Co-operation in the region to share expertise and knowledge may remove some implementation barriers.</p> <p>Participation in vermicomposting may be limited due to lack of success of vermicomposting.</p>	<p>Potential difficulty in expanding composting in multi-family units if odour and insect problems occur.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting and promotion/ education.</p> <p>Residents likely to be willing to pay for subsidized backyard composters.</p> <p>Possible future concerns about the cost of leaf and yard waste</p> <p>After the phase-in period households are likely to realize the benefit of diverting their waste through lower costs.</p> <p>Willingness to pay for garbage processing will depend on the pricing.</p>	<p>Unlikely to significant affect high density housing participation in 3Rs. Composting in high-rise households may not be effective.</p> <p>In the short-term, may lead to illegal burning and dumping.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Initially, there will be some negative attitudes on the part of the public to a direct cost system. It may be viewed by the public as an additional "tax" on citizens. This attitude may change by implementing a direct cost system designed specifically for York region.</p> <p>Public education and consultation will also be important to enhancing positive attitudes. The householders should be shown how waste management costs are reduced on their property taxes.</p> <p>Increase in positive attitudes to 3Rs due to additional source separation to reduce garbage, expansion of household composting and promotion/ education.</p>		
Attitudes and perceptions toward 3Rs activities	<p>Potential for multi-family households to object to composting if odour and insect problems occur. Mitigation to include proper design of collection system for apartment building owners, managers, and dwellers.</p> <p>In longer term, high participating households may perceive a distinct financial advantage over lower participating households, increasing their enthusiasm for the initiative.</p> <p>Positive attitude toward recycling in multi-family buildings likely to be enhanced by allowing apartment owners/managers to choose</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none"> Possible future concerns about the cost of leaf and yard waste collection and composting. Residents likely to be willing to pay for subsidized backyard composters. Potential for the system to be seen as a regressive tax system affecting lower income groups the most. Mitigation could include free or subsidized collection for lower income households. After the phase-in period households are likely to realize the benefit of diverting their waste through lower costs. Those who may oppose direct cost may be willing to pay for garbage pick-up/disposal if their taxes are reduced by the normal garbage processing costs attributed to their household. 		

TABLE A8.4 SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Greater participation in 3Rs with more people using composters (backyard and vermicompost) and separating out more recyclables due to expanding materials collected in blue box, distribution of additional backyard composters and enhanced by promotion and education program.</p> <p>Provision of recycling services to all multi-family buildings of greater than 6 units should increase the level of participation.</p> <p>White goods collection service probably leads to higher participation.</p> <p>Participation in vermicomposting may be limited due to lack of success of vermicomposting.</p>	<p>Greater participation in 3Rs as population grows and more 3Rs services are provided.</p> <p>Possible difficulty in expanding composting in multi-family units if odour and insect problems occur.</p> <p>Proper design of collection systems and a system of choice for apartment building owners, managers and dwellers will be important.</p> <p>Municipalities may be willing to participate in and financially support the expanded Blue Box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to maintain and expand the Blue Box.</p> <p>Possible future concerns about the cost of leaf and yard waste collection and composting.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Expanded Blue Box System does not require a radical altering of 3Rs attitudes and behaviours. People currently understand, support and participate in all the traditional components (Blue Box, backyard composters, etc.) of a Blue Box System. Municipalities are familiar with the strengths and weaknesses of traditional Blue Box Systems. If subsidies continue, there is likely to be municipal support. York Region already has a well established infrastructure for a Blue Box System.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and perceptions toward 3Rs activities	<p>Increase in current positive attitudes to 3Rs due to expansion of blue box and provision of recycling and composting service to multi-family households, household composting and promotion/education.</p> <p>Potential for multi-family residents to object to composting if odour, and insect problems occur.</p> <p>Positive attitude towards recycling in multi-family buildings could be enhanced by allowing apartment owners/managers to choose the system for their building.</p>		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> A minor disadvantage is that participation in recycling and composting in high density housing is uncertain. If the Blue Box program is not subsidized by the private/public sector, municipalities may cut back service to reduce overall costs and participation may be reduced. If subsidies are not available for this type of system, it may become a disadvantage for financial reasons or level of service and participation may be reduced.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Possible future concerns about the cost of leaf and yard waste collection and composting. Likely unnecessary in rural areas.</p> <p>Residents likely to be willing to pay for subsidized backyard composters.</p> <p>Unknown if residents are willing to pay higher cost for composters or if those who don't have them now are willing or able to pay current cost.</p> <p>Municipalities may be willing to pay for the expanded blue box system particularly if current subsidies continue or there is funding as recommended in the "Industry Packaging Model" (formerly known as GPMC model). If provincial or private sector subsidies are not provided, municipalities may be unwilling to continue and expand Blue Box.</p> <p>Possible concern on the part of high-rise owners/tenants on the costs of recycling and composting infrastructure.</p>		

TABLE A8.5
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: York Region

SYSTEM

: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Wet/Dry Systems require high levels of commitment by participants to prevent contamination of wet and dry streams. The highest levels of participation and contamination are most likely in single-family residences because of low turnover and greater amount of storage space than multiple-family residences. Participation rates in York could be quite high because of the relatively low proportion of apartments and rental units and because this region is not as ethnically and linguistically as diverse as Metropolitan Toronto. (Similar to Peel)</p> <p>Participation could be enhanced through education, personal contact and public consultation.</p>	<p>Due to very limited North American experience with Wet/Dry Systems, it is difficult to predict attitudes and level of participation on the part of citizens. A Wet/Dry System has the potential to divert a significant quantity of the residential waste stream (approximately 60%), but it requires diligent source separation on the part of citizens. If a high enough level of household source separation is not achieved, the "dry" and "wet" streams could be severely contaminated, leading to poor compost quality and extensive sorting of dry recyclables.</p> <p>Due to the preponderance of single family dwellings, a relatively small proportion of the population that is elderly and limited rental units, a wet/dry system in York Region may be feasible. Participation could be enhanced through high levels of education, information provision, personal contact and public consultation.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> · A wet/dry system would appear to be suitable in York Region because of a high proportion of single family residences, a relatively lower percentage of elderly people and a low proportion of rental units and high rise apartments. · Acceptance of other 3Rs activities in York. · Ethnic homogeneity suggests efficient education. · Potential for less contamination. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> · To be effective, this system requires a change of resident waste management behaviour. Residents must separate all food waste and store it for one week. A transition period may be required.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Participation in 3Rs	<p>Current participation in backyard composting is high and is expected to be high in York because of a significant proportion of single-family dwellings and the rural sectors of York (rural households likely to compost more easily). Overall rate of use is likely to decline as others acquiring composters later may not be dedicated to its use or those with composters sort their waste into the "wet" stream.</p>	<p>There is likely to be resistance from apartment owners and managers because of potential nuisance effects and cost issues.</p> <p>The willingness of municipalities to pay the costs of the wet/dry system are unknown.</p> <p>Existing and new compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of "wet" waste including meat waste from the wet/dry system may aggravate the effects and lead to more negative attitudes on the part of citizens.</p> <p>Region and residents are likely to continue to accept and support 3Rs promotion and education.</p> <p>Support, participation and willingness to pay up to 1/3 of the cost by residents for composters is likely to continue.</p> <p>Support, participation and willingness to pay for leaf and yard waste collection is likely to continue in the short term. In the long term concern about the cost and benefit may become an issue.</p>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Apartment dwellers likely to have difficulty participating. Residents may not separate their food waste as diligently, particularly in winter and may "contaminate" the garbage or recyclables stream. Additional odour and health effects could occur at composting facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and perceptions toward 3Rs activities</p>	<p>There is no data on a North American wet/dry system in medium to high density urban areas or in rural areas. There would likely be some opposition to the implementation of a wet/dry system from building owners, managers and residents because of the potential for vermin, insects, odours, hygiene concerns and potential cost. Some concerns may be addressed by developing various alternative systems for large apartments or arrange for frequency of removal.</p> <p>Probably unacceptable in multi-family units. It is doubtful that tenants will keep the 3 streams in their apartment for a period of time that would be suitable to generate a significant quantity of waste for the bags or there may be concern about the use of many bags for small amounts of waste.</p> <p>Residents, particularly elderly and disabled may not accept 3-stream Wet/Dry System, if inconveniences such as odour, waste sticking to bin, and moving 90 gallon bins in winter are extensive.</p> <p>Existing compost facilities are likely to become less favourable if odour and health issues are not resolved in the short term. The addition of increased amounts of 'wet' waste from the wet/dry system may aggravate the problems and lead to more negative attitudes.</p> <p>Household composting is acceptable in single-family residences and in rural households. Level of acceptance in multi-family residences is unknown.</p> <p>General acceptance of leaf and yard waste</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<p>Building owners/managers may be unwilling to provide wet/dry services to tenants due to costs.</p> <p>The willingness of municipalities to pay the costs of the wet/dry system are unknown.</p> <p>Municipalities may be hesitant to participate in Wet/Dry system because of potentially higher costs.</p> <p>Additional costs of leaf and yard waste collection and composting are currently acceptable to residents but costs may become an issue in the future. Rural areas are unlikely to require leaf and yard waste collection.</p> <p>A proportion of residents in each municipality are willing to pay one-third the cost of backyard composters and appear willing to accept municipal expenditures for education and promotion. Uncertain of acceptance of higher costs for composters or for those who have not purchased a composter.</p> <p>The region and residents are likely to continue to support 3Rs promotion and education.</p>		

TABLE A8.6
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : York Region
SYSTEM : Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Greater participation may be possible with more people using household composters, distribution of additional backyard composters, and promotion /education program. Some residents are likely to decide not to source separate some or all of their recyclables and food waste knowing that it will be separated for them at the central mixed waste processing and composting facility. (Magnitude uncertain) Mixed waste processing conflicts with a philosophy of personal involvement in 3Rs; some municipalities may not want to be involved on that basis. Provision of recycling services to all multi-family buildings of greater than 6 units should increase the level of participation in York although low participation of households. White goods collection service probably leads to high participation. 	<ul style="list-style-type: none"> Significant odour effects/concerns and possible health concerns with the processing and composting facility. Change in participation in household source separation of materials is uncertain. Over time there could be a reduction in household participation due to provision of separation at the MWP facility. Municipalities and residents may not be willing to pay for the construction and/or operation of the mixed waste processing and composting facility due to odour and health concerns and have concerns about the future costs/benefits of leaf and yard waste collection. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Level of participation in composting is equal to direct cost, expanded blue box, and wet/dry but greater than existing and existing/committed. Capture rate should be increased using other systems. Those who have difficulty source separating will not. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Significant odour problems and potential public and occupational health concerns may make the MWPC facility unacceptable to the public, employees and/or the municipality and may result in restricted use or closure of the facility.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and perceptions toward 3Rs activities</p>	<ul style="list-style-type: none"> Positive attitude towards recycling in multi-family buildings could be enhanced by allowing apartment owners managers to choose the system for their building. Possible slight increase in current positive attitudes to 3Rs due to expansion of household composting and opportunities, promotion/ education and incorporation of multi-family/high-rise households. Potential for significant opposition to the mixed waste processing and composting facility due to odour effects and public and occupational health concerns (perceived and actual). 	<p>Possible difficulty in expanding composting multi-family units if odour and insect problems occur. Proper design of collection systems and a system of choice for apartment building owners, managers and dwellers will be important.</p>	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Some residents may not source separate their recyclables and food waste (for household composting) knowing that the garbage will be sorted for them at the MWPC facility. This could have a negative effect on the use of other components of the system and decrease support for 3Rs in the long run. Municipalities and the province may be unwilling to pay the high capital costs for the mixed waste processing system.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to pay	<ul style="list-style-type: none">· Municipalities likely to be unwilling to contribute to the high capital and operating costs of the processing and composting facility.· Possible future concerns about the cost of leaf and yard waste collection and composting and the willingness of residents and municipalities to pay for collection and processing.· Residents likely to be willing to pay for subsidized backyard composters, and may be more willing to purchase used goods. Unknown if residents are willing to pay higher cost for composter or if those who don't have them now are willing or able to pay current cost.· Possible concern on the part of high rise owners/tenants on the cost of recycling and composting infrastructure.		

TABLE A9.1
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Greater Toronto Area

SYSTEM : IC&I Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<ul style="list-style-type: none"> May be having a stigma effect on neighbourhoods from public and private MRFs, depots and private composting facilities. Minor nuisance effects such as traffic, litter, and noise, associated with IC&I composting facilities, public and private MRFs and depots. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor. Significant odour effects, health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with centralized composting facilities. 	<ul style="list-style-type: none"> Odour and health concerns associated with centralized composting facilities. Minor nuisance effects on residents, community features, businesses and communities associated with MRFs and depots. Employees at MRFs and in particular compost facilities, may be exposed to health and safety hazards. May be having a increase in community pride, as people are encouraged to do and learn more. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities are required. Effects are due to increase use of existing facilities. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Nuisance effects and health concerns for residents, community features, businesses and communities.
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Employees at MRFs and in particular compost facilities are subjected to a variety of health and safety hazards. May be having health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. from IC&I composting facilities. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on communities	<ul style="list-style-type: none"> May be having stigma effect on communities from private and public MRFs, facilities and private compost facilities. Traffic inconveniences in communities due to collection vehicles. 		
Potential effects on community features	<ul style="list-style-type: none"> May be having stigma effect on community features and businesses from facilities. Minor nuisance effects on community features and businesses at some facilities. Odour effects and health concerns associated with centralized composting facilities. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> Positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities. 	<ul style="list-style-type: none"> Positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system places the least amount of waste management regulation on the IC&I sector, with the resulting cost savings to individual businesses, industries and institutions.
Potential effect on employment	<ul style="list-style-type: none"> Very minor direct employment gains are likely in IC&I collection, sorting, composting and in recycling industries. Very minor indirect employment effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing, and direction of effects is uncertain. 	<ul style="list-style-type: none"> Public interest, concern for the environment and competitiveness have forced many institutions, businesses and industries to become far more proactive in waste management issues. This has led to significant changes in operations and corporate philosophy. 	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> This system is likely to have the least effect on lifestyle and IC&I waste management attitudes and operations. This system has the least potential for increasing economies of scale for recyclables.
Potential effect on economic development	<ul style="list-style-type: none"> Very minor direct economic benefits are likely in IC&I collection, sorting, composting and in recycling industries. Very minor indirect economic effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing and direction of effects is uncertain. Unlikely to raise the volume of recyclables needed for some markets to achieve significant economies of scale. Government programs such as the Ontario Waste Exchange are likely aiding industry in lowering costs of capital purchases. 	<ul style="list-style-type: none"> Very minor direct employment gains and economic benefits are likely in all aspects of IC&I waste management. Indirect effects (secondary and tertiary) could include employment and economic losses and gains. Unlikely to significantly increase the volume of recyclable materials. 	<ul style="list-style-type: none"> This system will produce the fewest number of direct employment gains and limited economic development in the waste management sector.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Public interest in waste management and the environment has had significant effects on corporate (public and private) culture. Concerns over public image, the environment, profitability and competitiveness are all key factors in developing strategies to deal with environmental and waste management problems. Many private corporations and public institutions have taken significant steps to manage waste. These steps vary from the multinational corporation that deals with the problem of waste management as part of its long term corporate strategy (Continuous Improvement or Just in Time programs, etc.), to day-to-day operational changes for most employees. In many cases these changes have been a source of employee and management pride. Public recognition may further encourage IC&I generators.</p> <p>Many IC&I generators have a lack of space for extensive programs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Negative distribution effect on some local communities, population groups, institutions, industries and businesses located near private composting facilities and public and private MRFs, as they may be affected by nuisance effects while other residents served by the facility are unaffected. Smaller businesses, institutions and industries (e.g. general construction contractors) are likely to be more significantly affected by landfill bans than large ones because of their smaller economies of scale. 	<ul style="list-style-type: none"> Negative distribution effects from IC&I facilities on a few local groups, institutions, businesses and industries. Minor positive future generational effect. Regulation disproportionately affects smaller businesses. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system has the fewest negative distribution effects from facilities. This system has the fewest negative distribution effects from regulation on smaller business. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Least positive effect for future generational concerns.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)			
Potential future generation effects of system	<ul style="list-style-type: none"> Very minor positive effect through more sustainable use of resources and conservation of the environment for use/enjoyment through recycling, composting, repair/reuse. Current generation bears the costs for changing to more sustainable behaviour. 		

TABLE A9.2
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible stigma effect on neighbourhoods from increased flow of materials through existing public and private MRF's, depots and private composting facilities.</p> <p>Minor nuisance effects such as traffic, litter, and noise, associated with increased flow of materials through IC&I composting facilities, public and private MRF's and depots. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor. Effects may be reduced with consultation and proper management.</p> <p>Potential odour and health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise associated with increased flow of materials through centralized composting facilities. May be reduced with public education, consultation and proper management.</p>	<p>Potential odour and health concerns associated with centralized composting facilities.</p> <p>Minor nuisance effects on residents, community features, businesses and communities associated with MRF's and depots.</p> <p>Employees at MRF's and in particular compost facilities, may be exposed to health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> No new facilities are required. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Nuisance effects and health concerns for residents, community features, businesses and communities. Effects are due to increased use of existing facilities.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Employees at MRFs and in particular compost facilities may be subjected to a variety of health and safety hazards associated with an increased flow of materials, should be minimized by education. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. associated with increased flow of materials through IC&I composting facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Possible stigma effect on communities from increased flow of materials through existing public and private MRFs, depots and private composting facilities. Potential traffic inconveniences in communities due to increased flow of materials transported by collection vehicles. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Possible stigma effect on community features and businesses from increased flow of materials through existing public and private MRFs, depots and private composting facilities.</p> <p>Minor nuisance effects on community features and businesses at some facilities associated with increasing flow of materials. Effects may be reduced with consultation and proper management.</p> <p>Odour effects and health concerns associated with centralized composting facilities. May be reduced with public education, consultation and proper management.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<p>Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities.</p>	<p>Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities.</p> <p>Public interest, concern for the environment and competitiveness have forced many institutions, businesses and industries to become far more proactive in waste management issues. This has led to significant changes in operations and corporate philosophy. Generally, these attitudes are positive, but they may turn negative because of the emphasis on regulations rather than voluntary measures.</p> <p>Minor direct employment gains and economic benefits are likely in all aspects of IC&I waste management. Indirect effects (secondary and tertiary) could include employment and economic losses and gains.</p> <p>Likely to increase the volume of recyclable materials and improve markets.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system places less waste management regulation on the IC&I sector than systems 3 - 6. Therefore, individual businesses, industries and institutions will be less affected by this system than 3 - 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> The emphasis on regulation may lead to negative attitudes on the part of the IC&I sector. This system has less potential to increase economies of scale for recyclables than systems 3 - 6. This system will produce fewer direct employment gains and limited economic development in the waste management sector than systems 3 - 6.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Minor direct employment gains are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Minor indirect employment effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing, and direction of effects is uncertain.</p> <p>Net long term employment gains in 3Rs related industries in the GTA are dependent on a variety of factors inside and outside the GTA. While direct employment in all aspects of waste management services will likely increase as the Ontario 3Rs regulations are implemented, it will represent an added cost to many if not most of the IC&I sector, in particular smaller institutions, industries and businesses covered under the regulations. These negative effects could be minimized by both private and public action.</p> <p>In the IC&I sector, a greater number of institutions, industries and businesses are recognizing that waste must be treated as a resource. Just as businesses increasingly seek to rationally manage human and fiscal resources, so also is the value of waste being recognized. Innovative institutions and companies that seek to reduce,</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>reuse and identify markets for recycled materials will be more competitive than those that don't.</p> <p>Government can help institutions, commercial enterprises and industry in the transition. Adverse effects of regulations could be partially mitigated by establishing sufficient phase-in periods for each sector and each type of initiative. Waste audits and waste reduction workplans will not require a long phase-in; packaging audits and packaging reduction workplans will require somewhat longer, because of the need to rationalize the related manufacturing processes. A sectoral review of the regulations should be conducted to identify key problems for each sector.</p> <p>The long term employment gains in 3Rs related industries and businesses will be highly dependent on the role of the provincial government. For most if not all recyclables there is not sufficient economies of scale in the GTA to establish cost-effective plants. While the sectors vary, any material recycling plant will require significant quantities from other regions, provinces and possibly the United States.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>Mandatory source separation of some materials may make sense if a sufficient volume of materials can be produced for viable end markets. This may require co-operation between the large urban areas in the province. This is also dependent on an industry or industries, that possess the proven technology and are willing to invest in such an operation.</p>		
Potential effect on economic development	<ul style="list-style-type: none"> Minor direct economic benefits are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Minor indirect economic effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing and direction of effects is uncertain. Likely to raise the volume of recyclables needed for some markets to achieve greater economies of scale. Government programs such as the Ontario Waste Exchange will likely aid industry in lowering costs of capital purchases. Mitigational measures for economic development should be treated equally to those of employment. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Public interest in waste management and the environment has had significant effects on corporate (public and private) culture. Concerns over public image, the environment, profitability and competitiveness are all key factors in developing strategies to deal with environmental and waste management problems. Many private corporations and public institutions have taken significant steps to manage waste. These steps vary from the multinational corporation that deals with the problem of waste management as part of its long term corporate strategy (Continuous Improvement or Just in Time programs, etc.), to day-to-day operational changes for most employees. In many cases these changes have been a source of employee and management pride. Public recognition may further encourage IC&I generators.</p> <p>Many IC&I generators may be negatively affected by the provincial 3Rs regulations. Many will lack the space for mandatory source separation.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Possible negative distribution effect on some local communities, population groups, institutions, industries and businesses located near private composting facilities and public and private MRF's, as they may be affected by nuisance effects associated with an increased flow of materials, while other residents served by the facility are unaffected. Smaller businesses, institutions and industries covered under the 3Rs regulations are likely to be more significantly affected than large ones because of their smaller economies of scale. 	<ul style="list-style-type: none"> Possible negative distribution effects from IC&I facilities on a few local groups, institutions, businesses and industries. Positive future generational effect. Provincial 3Rs regulations will negatively affect smaller businesses covered under the regulations. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system has few negative distribution effects from facilities. This system has less negative regulation distribution effects than systems 3 - 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Second least positive effect for future generational concerns.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)			
Potential future generation effects of system	<ul style="list-style-type: none"> Minor positive effect through more sustainable use of resources and conservation of the environment for use/enjoyment through recycling, composting, repair/reuse. Current generation bears the costs for changing to more sustainable behaviour. 		

TABLE A9.3

SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Extended 3Rs Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible stigma effect on neighbourhoods from existing and new public and private MRFs, depots and existing private composting facilities.</p> <p>Minor nuisance effects such as traffic, litter, and noise, associated with existing IC&I composting facilities, and new and existing public and private MRFs and depots. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor. Effects may be reduced with consultation and proper management. Mitigation to include proper siting.</p> <p>Potential odour and health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise with existing centralized composting facilities. May be reduced with public education, consultation and proper management.</p> <p>Possible displacement of residents for new MRF facilities.</p>	<p>Potential odour and health concerns associated with centralized composting facilities.</p> <p>Minor nuisance effects on residents, community features, businesses and communities associated with MRFs and depots.</p> <p>Employees at MRFs and in particular compost facilities, may be exposed to health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Potential for displacement of residents, community features and businesses by new MRFs.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Likely to be less severe nuisance and health effects from facilities than Systems 5 or 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Nuisance effects and health concerns for residents, community features, businesses and communities. Effects are due to increased use of existing facilities and new MRFs. Potential for displacement effects.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Employees at MRFs and in particular compost facilities may be subjected to a variety of health and safety hazards associated with an increased flow of materials, should be minimized by education. Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. associated with increased flow of materials through IC&I composting facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Possible stigma effect on communities from existing and new public and private MRFs, depots and existing private composting facilities. Potential traffic inconveniences in communities due to increased flow of materials transported by collection vehicles. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Possible stigma effect on community features and businesses from existing and new public and private MRFs, depots and existing private composting facilities.</p> <p>Minor nuisance effects on community features and businesses at some facilities from existing and new public and private MRFs, depots and existing private composting facilities. Effects may be reduced with consultation and proper management. Effects may be mitigated by proper siting procedures.</p> <p>Odour effects and health concerns associated with centralized composting facilities. May be reduced with public education, consultation and proper management.</p> <p>Potential for displacement of community features and businesses for new MRFs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	<ul style="list-style-type: none"> Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities. 	<ul style="list-style-type: none"> Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities. Public interest, concern for the environment and competitiveness have forced many institutions, businesses and industries to become far more proactive in waste management issues. This has led to significant changes in operations and corporate philosophy. Generally, these attitudes are positive, but they may turn negative because of the emphasis on regulations rather than voluntary measures. Direct employment gains and economic benefits are likely in all aspects of IC&I waste management. Indirect effects (secondary and tertiary) could include employment and economic losses and gains. Likely to significantly increase the volume of recyclable materials and improve markets. Potential to have significant negative operational and cost effects on some institutions, businesses and industries. Minor gain in construction sector employment and economic development. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system has the potential to significantly improve economies of scale for recyclable materials. This system will produce significant direct employment gains and economic development in the waste management sector. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> The emphasis on regulation may lead to negative attitudes on the part of the IC&I sector. This system will result in significant operational changes for some institutions, businesses and industries.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Indirect employment effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing, and direction of effects is uncertain.</p> <p>Minor direct employment gains are likely in the construction sector.</p> <p>Net long term employment gains in 3Rs related industries in the GTA are dependent on a variety of factors inside and outside the GTA. While direct employment in all aspects of waste management services will likely increase due to the implementation of System 3 regulations, it will represent an added cost to many if not most of the IC&I sector, in particular smaller institutions, industries and businesses covered under the regulations. These negative effects could be minimized by both private and public action.</p> <p>In the IC&I sector, a greater number of institutions, industries and businesses are recognizing that waste must be treated as a resource.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>Just as businesses increasingly seek to rationally manage human and fiscal resources, so also is the value of waste being recognized. Innovative institutions and companies that seek to reduce, reuse and identify markets for recycled materials will be more competitive than those that don't. Government can help institutions, commercial enterprises and industry in the transition. Adverse effects of regulations could be partially mitigated by establishing sufficient phase-in periods for each sector and each type of initiative. Waste audits and waste reduction workplans will not require a long phase-in; packaging audits and packaging reduction workplans will require somewhat longer, because of the need to rationalize the related manufacturing processes. A sectoral review of the regulations should be conducted to identify key problems for each sector.</p> <p>The long term employment gains in 3Rs related industries and businesses will be highly dependent on the role of the provincial government. For most if not all recyclables there is not sufficient economies of scale in the GTA to establish cost-effective plants.</p>		
Potential effect on employment (continued)	<p>The market development policy would be very important to capitalizing on employment and economic development in recycling industries.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Indirect economic effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing and direction of effects is uncertain. Likely to significantly raise the volume of recyclables needed for some markets to achieve greater economies of scale. Government programs such as the Ontario Waste Exchange will likely aid industry in lowering costs of capital purchases. Minor economic benefit in the construction sector. Mitigational measures for economic development should be treated equally to those of employment. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Public interest in waste management and the environment has had significant effects on corporate (public and private) culture. Concerns over public image, the environment, profitability and competitiveness are all key factors in developing strategies to deal with environmental and waste management problems. Many private corporations and public institutions have taken significant steps to manage waste. These steps vary from the multinational corporation that deals with the problem of waste management as part of its long term corporate strategy (Continuous Improvement or Just in Time programs, etc.), to day-to-day operational changes for most employees. In many cases these changes have been a source of employee and management pride. Public recognition may further encourage IC&I generators.</p> <p>Many IC&I generators may be negatively affected; lacking space and operational capacity for mandatory source separation. This may result in safety hazards and added costs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Possible negative distribution effect on some local communities, population groups, institutions, industries and businesses located near existing and new public and private MRI's and exiting composting facilities, as they may be affected by nuisance effects and displacement, while other residents served by the facility are unaffected. Smaller businesses, institutions and industries covered under System 3 regulations are likely to be more significantly affected than large ones because of their smaller economies of scale. 	<ul style="list-style-type: none"> Possible negative distribution effects from IC&I facilities on a few local groups, institutions, businesses and industries. Positive future generational effect. System 3 regulations will negatively affect smaller businesses covered under the regulations. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Regulation will be broadly based but not include very small generators. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> This system has some negative distribution effects from new and existing facilities.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)			
Potential future generation effects of system	<ul style="list-style-type: none"> Minor positive effect through more sustainable use of resources and conservation of the environment for use/enjoyment through recycling, composting, repair/reuse. Current generation bears the costs for changing to more sustainable behaviour. 		

TABLE A9.4
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Greater Toronto Area
SYSTEM : IC&I Expanded 3Rs Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible stigma effect on neighbourhoods from existing and new public and private MRI's, depots and existing private composting facilities.</p> <p>Minor nuisance effects such as traffic, litter, and noise, associated with existing IC&I composting facilities, and new and existing public and private MRI's and depots.</p> <p>Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor. Effects may be reduced with consultation and proper management. Mitigation to include proper siting.</p> <p>Potential odour and health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise with existing centralized composting facilities. May be reduced with public education, consultation and proper management.</p> <p>Possible displacement of residents for new MRI facilities.</p>	<p>Potential odour and health concerns associated with centralized composting facilities.</p> <p>Minor nuisance effects on residents, communities associated with MRI's and depots.</p> <p>Employees at MRI's and in particular compost facilities, may be exposed to health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Potential for displacement of residents, community features and businesses by new MRI's.</p>	<p><u>Advantages</u></p> <p>Likely to be less severe nuisance and health effects from facilities than Systems 5 or 6.</p> <p><u>Disadvantages</u></p> <p>Nuisance effects and health concerns for residents, community features, businesses and communities.</p> <p>Effects are due to increased use of existing facilities and new MRI's. If markets are not developed there could be excess dry recyclables stored at MRI's, depots and industries.</p> <p>Potential for displacement effects.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<p>Employees at MRFs and in particular compost facilities may be subjected to a variety of health and safety hazards associated with an increased flow of materials, should be minimized by education.</p> <p>Potential for health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. associated with increased flow of materials through IC&I composting facilities.</p>		
Potential effects on communities	<p>Possible stigma effect on communities from existing and new public and private MRFs, depots and existing private composting facilities.</p> <p>Potential traffic inconveniences in communities due to increased flow of materials transported by collection vehicles.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<ul style="list-style-type: none"> Possible stigma effect on community features and businesses from existing and new public and private MRF's, depots and existing private composting facilities. Minor nuisance effects on community features and businesses at some facilities from existing and new public and private MRF's, depots and existing private composting facilities. Effects may be reduced with consultation and proper management. Effects may be mitigated by proper siting procedures. Odour effects and health concerns associated with centralized composting facilities. May be reduced with public education, consultation and proper management. Potential for displacement of community features and businesses for new MRF's. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<p>Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities.</p>	<p>Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities.</p> <p>Public interest, concern for the environment and competitiveness have forced many institutions, businesses and industries to become far more proactive in waste management issues. This has led to significant changes in operations and corporate philosophy. Generally, these attitudes are positive, but they may turn negative because of the emphasis on regulations rather than voluntary measures.</p> <p>Direct employment gains and economic benefits are likely in all aspects of IC&I waste management. Indirect effects (secondary and tertiary) could include employment and economic losses and gains.</p> <p>Likely to significantly increase the volume of recyclable materials and improve markets, particularly for wood, metal, plastics and paper.</p> <p>Potential to have significant negative operational and cost effects on some institutions, businesses and industries.</p> <p>Minor gain in construction sector employment and economic development.</p>	<p><u>Advantages</u></p> <p>This system has the potential to significantly improve economies of scale for recyclable materials particularly for wood, metal, plastics and paper.</p> <p>This system will produce significant direct employment gains and economic development in the waste management sector.</p> <p><u>Disadvantages</u></p> <p>The emphasis on regulation may lead to negative attitudes on the part of the IC&I sector.</p> <p>This system will result in significant operational changes for some institutions, businesses and industries.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Indirect employment effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing, and direction of effects is uncertain.</p> <p>Minor direct employment gains are likely in the construction sector.</p> <p>Net long term employment gains in 3Rs related industries in the GTA are dependent on a variety of factors inside and outside the GTA. While direct employment in all aspects of waste management services will likely increase due to the implementation of System 4 regulations, it will represent an added cost to many if not most of the IC&I sector, in particular smaller institutions, industries and businesses covered under the regulations. These negative effects could be minimized by both private and public action. In the IC&I sector, a greater number of institutions, industries and businesses are recognizing that waste must be treated as a resource.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>Just as businesses increasingly seek to rationally manage human and fiscal resources, so also is the value of waste being recognized. Innovative institutions and companies that seek to reduce, reuse and identify markets for recycled materials will be more competitive than those that don't. Government can help institutions, commercial enterprises and industry in the transition. Adverse effects of regulations could be partially mitigated by establishing sufficient phase-in periods for each sector and each type of initiative. Waste audits and waste reduction workplans will not require a long phase-in; packaging audits and packaging reduction workplans will require somewhat longer, because of the need to rationalize the related manufacturing processes. A sectoral review of the regulations should be conducted to identify key problems for each sector.</p> <p>The long term employment gains in 3Rs related industries and businesses will be highly dependent on the role of the provincial government. For most if not all recyclables there is not sufficient economies of scale in the GTA to establish cost-effective plants.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>The market development policy recommended would be very important to capitalizing on employment and economic development in recycling industries.</p>		
Potential effect on economic development	<p>Direct economic benefits are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Indirect economic effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing and direction of effects is uncertain.</p> <p>Likely to significantly raise the volume of recyclables (wood, scrap metals, all plastics and some paper) needed for some markets to achieve greater economies of scale.</p> <p>Government programs such as the Ontario Waste Exchange will likely aid industry in lowering costs of capital purchases.</p> <p>Minor economic benefit in the construction sector.</p> <p>Mitigational measures for economic development should be treated equally to those of employment.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Public interest in waste management and the environment has had significant effects on corporate (public and private) culture. Concerns over public image, the environment, profitability and competitiveness are all key factors in developing strategies to deal with environmental and waste management problems. Many private corporations and public institutions have taken significant steps to manage waste. These steps vary from the multinational corporation that deals with the problem of waste management as part of its long term corporate strategy (Continuous Improvement or Just in Time programs, etc.), to day-to-day operational changes for most employees. In many cases these changes have been a source of employee and management pride. Public recognition may further encourage IC&I generators.</p> <p>Many IC&I generators may be negatively affected, lacking space and operational capacity for mandatory source separation, in particular if dry recyclable markets are not well developed. This may result in safety hazards and added costs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<p>Possible negative distribution effect on some local communities, population groups, institutions, industries and businesses located near existing and new public and private MRFs and existing composting facilities, as they may be affected by nuisance effects and displacement, while other residents served by the facility are unaffected.</p> <p>Smaller businesses, institutions and industries covered under System 4 regulations are likely to be more significantly affected than large ones because of their smaller economies of scale.</p>	<p>Possible negative distribution effects from IC&I facilities on a few local groups, institutions, businesses and industries.</p> <p>Positive future generational effect.</p> <p>System 4 regulations will negatively affect smaller businesses covered under the regulations.</p>	<p><u>Advantages</u></p> <p>Regulation will be broadly based but not include very small generators.</p> <p><u>Disadvantages</u></p> <p>This system has some negative distribution effects from new and existing facilities.</p>
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)			
Potential future generation effects of system	<p>Minor positive effect through more sustainable use of resources and conservation of the environment for use/enjoyment through recycling, composting, repair/reuse.</p> <p>Current generation bears the costs for changing to more sustainable behaviour.</p>		

TABLE A9.5
SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Expanded 3Rs with Organics Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible stigma effect on neighbourhoods from existing and new public and private MRFs, depots and private composting facilities.</p> <p>Minor nuisance effects such as traffic, litter, and noise, associated with new and existing public and private MRFs, depots and IC&I composting facilities. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor. Effects may be reduced with consultation and proper management. Mitigation to include proper siting.</p> <p>Potential significant odour and health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise with new existing centralized composting facilities. May be reduced with public education, consultation and proper management. Effects may be mitigated by proper design, siting and planning.</p> <p>Possible displacement of residents for new MRFs and facilities.</p>	<p>Potential significant odour effects and health concerns associated with centralized composting facilities.</p> <p>Minor nuisance effects on residents, community features, businesses and communities associated with MRFs and depots.</p> <p>Employees at MRFs and in particular compost facilities, may be exposed to significant health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Potential for displacement of residents, community features and businesses by new MRFs and compost facilities.</p>	<p><u>Advantages</u></p> <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Significant nuisance effects and health concerns for residents, community features, businesses and communities associated with the composting of 90% of IC&I organic waste generation. Potential for displacement effects.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Employees at MRFs and in particular compost facilities may be subjected to a variety of significant health and safety hazards, should be minimized by education. Potential for significant health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. associated with increased flow of materials through IC&I composting facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Possible stigma effect on communities from existing and new public and private MRFs, depots and composting facilities. Potential traffic inconveniences in communities due to increased flow of materials transported by collection vehicles. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Possible stigma effect on community features and businesses from existing and new public and private MRFs, depots and composting facilities.</p> <p>Minor nuisance effects on community features and businesses at some facilities from existing and new public and private MRFs, depots and composting facilities. Effects may be reduced with consultation and proper management. Effects may be mitigated by proper siting procedures.</p> <p>Potential significant odour effects and health concerns associated with centralized composting facilities. May be reduced with public education, consultation and proper management. May be mitigated by proper siting, design and planning.</p> <p>Potential for displacement of community features and businesses for new MRFs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 2 : Potential for Broad Social Impact			
Potential for lifestyle changes	Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities.	<p>Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities.</p> <p>Public interest, concern for the environment and competitiveness have forced many institutions, businesses and industries to become far more proactive in waste management issues. This has led to significant changes in operations and corporate philosophy. Generally, these attitudes are positive, but they may turn negative because of the emphasis on regulations rather than voluntary measures.</p> <p>Direct employment gains and economic benefits are likely in all aspects of IC&I waste management. Indirect effects (secondary and tertiary) could include employment and economic losses and gains.</p> <p>Likely to significantly increase the volume of recyclable materials and improve markets.</p> <p>Potential to have significant negative operational and cost effects on some smaller institutions, businesses and industries.</p> <p>Minor gain in construction sector employment and economic development.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for employment and economic growth in organic waste management. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> The emphasis on regulation may lead to negative attitudes on the part of the IC&I sector. This system will result in significant operational changes and added costs for some small institutions, businesses and industries that generate organic waste.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Direct employment gains are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Indirect employment effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing, and direction of effects is uncertain.</p> <p>Minor direct employment gains are likely in the construction sector.</p> <p>Net long term employment gains in 3Rs related industries in the GTA are dependent on a variety of factors inside and outside the GTA. While direct employment in all aspects of waste management services will likely increase due to the implementation of System 5 regulations, it will represent an added cost to many if not most of the IC&I sector, in particular smaller institutions, industries and businesses covered under the regulations. These negative effects could be minimized by both private and public action.</p> <p>In the IC&I sector, a greater number of institutions, industries and businesses are recognizing that waste must be treated as a resource.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>Just as businesses increasingly seek to rationally manage human and fiscal resources, so also is the value of waste being recognized. Innovative institutions and companies that seek to reduce, reuse and identify markets for recycled materials will be more competitive than those that don't. Government can help institutions, commercial enterprises and industry in the transition. Adverse effects of regulations could be partially mitigated by establishing sufficient phase-in periods for each sector and each type of initiative. Waste audits and waste reduction workplans will not require a long phase-in; packaging audits and packaging reduction workplans will require somewhat longer, because of the need to rationalize the related manufacturing processes. A sectoral review of the regulations should be conducted to identify key problems for each sector. The long term employment gains in 3Rs related industries and businesses will be highly dependent on the role of the provincial government. For most if not all recyclables there is not sufficient economies of scale in the GTA to establish cost-effective plants.</p>		
Potential effect on employment (continued)	<p>The market development policy would be very important to capitalizing on employment and economic development in recycling industries.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on economic development	<ul style="list-style-type: none"> Direct economic benefits are likely in IC&I collection, sorting, consulting, recycling industries and in particular composting. Indirect economic effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing and direction of effects is uncertain. Currently, some large institutions, businesses and industries send organic waste to compost facilities. Mandated organic separation would most likely negatively impact small and independent institutions, businesses and industries. Improved waste hauling service, staff time, infrastructure and space would be required. Government programs such as the Ontario Waste Exchange will likely aid industry in lowering costs of capital purchases. Minor economic benefit in the construction sector. Mitigational measures for economic development should be treated equally to those of employment. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Public interest in waste management and the environment has had significant effects on corporate (public and private) culture. Concerns over public image, the environment, profitability and competitiveness are all key factors in developing strategies to deal with environmental and waste management problems. Many private corporations and public institutions have taken significant steps to manage waste. These steps vary from the multinational corporation that deals with the problem of waste management as part of its long term corporate strategy (Continuous Improvement or Just in Time programs, etc.), to day-to-day operational changes for most employees. In many cases these changes have been a source of employee and management pride. Public recognition may further encourage IC&I generators.</p> <p>Many IC&I generators may be negatively affected; lacking space for organic separation, and possible health effects.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Possible negative distribution effect on some local communities, population groups, institutions, industries and businesses located near existing and new public and private MRI's and composting facilities, as they may be affected by nuisance effects and displacement, while other residents served by the facility are unaffected. Smaller businesses, institutions and industries covered under these regulations are likely to be more significantly affected than large ones because of their smaller economies of scale. 	<ul style="list-style-type: none"> Possible negative distribution effects from IC&I facilities on a few local groups, institutions, businesses and industries. Positive future generational effect. These regulations will negatively affect smaller IC&I generators, in particular small and independent stores, restaurants, etc. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> More positive future generational effect than Systems 1 - 3. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> This system has the potential for some significant negative distribution effects from new and existing facilities.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)			
Potential future generation effects of system	<ul style="list-style-type: none"> Minor positive effect through more sustainable use of resources and conservation of the environment for use/enjoyment through recycling, composting, repair/reuse. Current generation bears the costs for changing to more sustainable behaviour. 		

TABLE A9.6 SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT

REGIONAL MUNICIPALITY : Greater Toronto Area
SYSTEM : IC&I Processing of all IC&I Waste

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Potential Local Community Impacts			
Potential effects on residents	<p>Possible stigma effect on neighbourhoods from existing and new public and private MRFs, depots and private composting facilities.</p> <p>Nuisance effects such as traffic, litter, and noise, associated with increased number of public and private MRFs, depots and IC&I composting facilities. Effects dependent on operation, type of material, density of surrounding population and sensitivity of receptor. Effects may be reduced with consultation and proper management. Mitigation to include proper planning, siting and design.</p> <p>Potential significant odour and health concerns and minor nuisance effects such as traffic, litter, birds, vermin and noise with new existing centralized composting facilities. May be reduced with public education, consultation and proper management. Effects may be mitigated by proper design, siting and planning.</p> <p>Possible displacement of residents for new MRFs and facilities.</p>	<p>Potential significant odour effects and health concerns associated with centralized composting facilities.</p> <p>Nuisance effects on residents, community features, businesses and communities associated with MRFs and depots.</p> <p>Employees at MRFs and in particular compost facilities, may be exposed to significant health and safety hazards.</p> <p>Possible increase in community pride, as people are encouraged to do and learn more.</p> <p>Potential for displacement of residents, community features and businesses by new MRFs and compost facilities.</p>	<p><u>Advantages</u></p> <p>This system has the most negative local community impacts because of the large number of depots, MRFs and compost facilities require</p> <p><u>Disadvantages</u></p> <p>Significant nuisance effects and health concerns for residents, community features, businesses and communities associated with the composting of 90% of IC&I organic waste generation.</p> <p>Potential for displacement effects.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on special/sensitive groups	<ul style="list-style-type: none"> Employees at MRFs and in particular compost facilities may be subjected to a variety of significant health and safety hazards, should be minimized by education. Potential for significant health effects (odours) on allergy sufferers, people with immuno deficiencies, etc. associated with increased flow of materials through IC&I composting facilities. 		
Potential effects on communities	<ul style="list-style-type: none"> Possible stigma effect on communities from increased number of public and private MRFs, depots and composting facilities. Potential traffic inconveniences in communities due to increased flow of materials transported by collection vehicles. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effects on community features	<p>Possible stigma effect on community features and businesses from increased number of public and private MRF's, depots and composting facilities.</p> <p>Nuisance effects on community features and businesses at some facilities from existing and new public and private MRF's, depots and composting facilities. Effects may be reduced with consultation and proper management. Effects may be mitigated by proper planning, siting and design procedures.</p> <p>Potential significant odour effects and health concerns associated with centralized composting facilities. May be reduced with public education, consultation and proper management. May be mitigated by proper siting, design and planning.</p> <p>Potential for displacement of community features and businesses for new MRF's.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Criterion 2 : Potential for Broad Social Impact</p> <p>Potential for lifestyle changes</p>	<ul style="list-style-type: none"> Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities. 	<ul style="list-style-type: none"> Possible positive social and lifestyle effect by encouraging management and employees to learn and participate more in 3Rs activities. Public interest, concern for the environment and competitiveness have forced many institutions, businesses and industries to become far more proactive in waste management issues. This has led to significant changes in operations and corporate philosophy. Generally, these attitudes are positive, but they may turn negative because of the very strong emphasis on regulations rather than voluntary measures. Direct employment gains and economic benefits are likely in all aspects of IC&I waste management. Indirect effects (secondary and tertiary) could include employment and economic losses and gains. Significant increase in the volume of recyclable materials and improve markets. Minor gain in construction sector employment and economic development. Likely to impose operational costs on most if not all institutions, industries and businesses in the GTA. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system is the most extensive in expanding economies of scale for recycling industries. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> The extreme emphasis on regulation may lead to negative attitudes on the part of the IC&I sector. This system will result in significant operational changes and added costs for most if not all institutions, businesses and industries in the GTA.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment	<p>Significant direct employment gains are likely in IC&I collection, sorting, composting, consulting and in recycling industries. Indirect employment effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing, and direction of effects is uncertain.</p> <p>Direct employment gains are likely in the construction sector.</p> <p>Net long term employment gains in 3Rs related industries in the GTA are dependent on a variety of factors inside and outside the GTA. While direct employment in all aspects of waste management services will increase due to the implementation of System 6 regulations, it will represent an added cost to many if not most of the IC&I sector, in particular smaller institutions, industries and businesses. These negative effects could be minimized by both private and public action.</p> <p>In the IC&I sector, a greater number of institutions, industries and businesses are recognizing that waste must be treated as a resource.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential effect on employment (continued)	<p>Just as businesses increasingly seek to rationally manage human and fiscal resources, so also is the value of waste being recognized. Innovative institutions and companies that seek to reduce, reuse and identify markets for recycled materials will be more competitive than those that don't.</p> <p>Government can help institutions, commercial enterprises and industry in the transition. Adverse effects of regulations could be partially mitigated by establishing sufficient phase-in periods for each sector and each type of initiative. Waste audits and waste reduction workplans will not require a long phase-in; packaging audits and packaging reduction workplans will require somewhat longer, because of the need to rationalize the related manufacturing processes. A sectoral review of the regulations should be conducted to identify key problems for each sector.</p> <p>The long term employment gains in 3Rs related industries and businesses will be highly dependent on the role of the provincial government. For most if not all recyclables there is not sufficient economies of scale in the GTA to establish cost-effective plants.</p>		
Potential effect on employment (continued)	The market development policy would be very important to capitalizing on employment and economic development in recycling industries.		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Potential effect on economic development.</p>	<ul style="list-style-type: none"> Direct economic benefits are likely in IC&I collection, sorting, composting, consulting, and in recycling industries. Indirect economic effects (secondary and tertiary) are likely in both the long and short term. Magnitude, timing and direction of effects is uncertain. Currently, some large institutions, businesses and industries send organic waste to compost facilities. Mandated organic separation would most likely negatively impact small and independent institutions, businesses and industries. Improved waste hauling service, staff time, infrastructure and space would be required. Government programs such as the Ontario Waste Exchange will likely aid industry in lowering costs of capital purchases. Economic benefit in the construction sector. Mitigational measures for economic development should be treated equally to those of employment. Improvement in recyclables markets. 		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Potential operational effects on institutions, commercial enterprises and industry	<p>Public interest in waste management and the environment has had significant effects on corporate (public and private) culture. Concerns over public image, the environment, profitability and competitiveness are all key factors in developing strategies to deal with environmental and waste management problems. Many private corporations and public institutions have taken significant steps to manage waste. These steps vary from the multinational corporation that deals with the problem of waste management as part of its long term corporate strategy (Continuous Improvement or Just in Time programs, etc.), to day-to-day operational changes for most employees. In many cases these changes have been a source of employee and management pride. Public recognition may further encourage IC&I generators.</p> <p>Most IC&I generators are likely to be negatively affected; lack of space, health effects, and added operational costs.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 3 : Distribution of Social Costs and Benefits			
Distribution of socio-economic effects on industry and population groups	<ul style="list-style-type: none"> Possible negative distribution effect on some local communities, population groups, institutions, industries and businesses located near increased number of public and private MRFs and composing facilities, as they may be affected by nuisance effects and displacement, while other residents served by the facility are unaffected. Smaller businesses, institutions and industries covered under these regulations are likely to be more significantly affected than large ones because of their smaller economies of scale. 	<ul style="list-style-type: none"> Possible negative distribution effects from IC&I facilities on a few local groups, institutions, businesses and industries. Positive future generational effect. These regulations will negatively affect smaller IC&I generators. 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system has the most positive future generational effect. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> This system has the greatest potential for significant negative distribution effects from new and existing facilities.
Distribution of lifestyle effects (e.g. health and safety, convenience for today, clean environment for tomorrow, financially sound)			
Potential future generation effects of system	<ul style="list-style-type: none"> Positive effect through more sustainable use of resources and conservation of the environment for use/enjoyment through recycling, composting, repair/reuse. Current generation bears the costs for changing to more sustainable behaviour. 		

TABLE A10.1 SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Greater Toronto Area

SYSTEM : IC&I Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Some small IC&I generators participate in curbside Blue Box system where service is available.</p> <p>Some major IC&I waste generators participate in source separation of dry and wet recyclables.</p> <p>Some major IC&I waste generators have completed waste audits, waste reduction initiatives and emphasized reduction and reusable packaging (e.g. thin-walling). Participation by smaller generators is not as high because of lack of resources (financial and human) and smaller economies of scale.</p> <p>Some IC&I associations have participated and encouraged their members to be more active in 3Rs.</p>	<p>Willingness to participate, generally a positive attitude and a degree of willingness to pay for waste management measures by some IC&I generators.</p> <p>Generally, larger IC&I generators are more willing to pay and participate to a higher degree than small generators because of greater access to resources and larger economies of scale.</p> <p>Where Blue Box service is available, small businesses are willing to participate.</p> <p>Willingness to compost by many IC&I generators provided compost is continually accepted.</p>	<p><u>Advantages</u></p> <p>This system is viewed as acceptable by IC&I sector because of the minimal amounts of regulation and emphasis on voluntary measures.</p> <p><u>Disadvantages</u></p> <p>Due to a lack of regulation, participation is limited.</p>

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and Perceptions Towards 3Rs	<p>IC&I generators of compost waste will be more willing to pay for composting providing these facilities continue to operate and accept the material. The periodic closing down of these facilities creates difficulties for IC&I generators.</p> <p>Grocery and food service industry are interested in donation of food to reuse organizations, but are concerned about possible liability issues.</p> <p>Positive attitude by many IC&I generators to participation in 3Rs, but preference is for voluntary measures rather than regulations.</p> <p>The institutional sector appears more willing to implement 3Rs programs than the commercial (industrial sectors).</p> <p>Generally 3Rs programs foster greater employee pride and enthusiasm and can lead to corporate pride.</p>		
Willingness to Pay	<p>IC&I sector has not been enthusiastic, but has generally complied with the extra costs imposed by current regulations of mandatory source separation and landfill bans.</p> <p>By implementing a variety of voluntary programs, the IC&I sector is indicating that they are willing to pay some costs.</p>		

TABLE A10.2
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Some small IC&I generators participate in curbside Blue Box system in Toronto and Caledon. They would likely continue to participate.</p> <p>Potential increase in the proportion of major IC&I waste generators that source separate dry and wet recyclables.</p> <p>Provincial 3Rs regulations will force major IC&I waste generators to participate in waste and packaging audits, reduction plans and mandatory source separation. Some IC&I waste generators have voluntarily implemented these initiatives.</p> <p>Participation by smaller generators is not as high because of lack of resources (financial and human) and smaller economies of scale.</p> <p>Potential for IC&I associations to increase their level of participation.</p>	<p>Willingness to participate, generally a positive attitude and a degree of willingness to pay for waste management measures by some IC&I generators. Potential negative attitudes towards new 3Rs regulations.</p> <p>Potential for larger IC&I generators to be willing to pay and participate to a higher degree than small generators because of greater access to resources and larger economies of scale.</p> <p>Where Blue Box service is available, small businesses will be likely to participate.</p> <p>IC&I generators will likely increase their level of composting provided compostable material is always accepted.</p> <p>IC&I operators not covered by the regulations may voluntarily participate more in waste diversion.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system may be viewed as acceptable by the IC&I sector because of the regulations are targeted to the IC&I sectors that can best respond.. This system does not impact small waste generators as much as systems 3 - 6. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Participation may be limited to those IC&I operators covered by the regulations, although some trickle down effect to smaller operators is anticipated.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and Perceptions Towards 3Rs	<ul style="list-style-type: none"> IC&I generators of compost waste will be more willing in the future to pay for composting providing these facilities continue to operate and accept the material. The periodic closing down of these facilities creates difficulties for IC&I generators. Grocery and food service industry are interested in donation of food to reuse organizations, but are concerned about possible liability issues. Implementation of "Good Samaritan" legislation would address this concern. Potentially negative attitudes on the part of IC&I waste generators to the provincial 3Rs regulations. Potential for those not covered by the regulation to increase their voluntary efforts to address the possibility expanded regulation. 		
Willingness to Pay	<ul style="list-style-type: none"> The IC&I sector will probably not be enthusiastic, but will comply with the extra costs imposed by the provincial 3Rs regulations. Some may realise a cost advantage. The IC&I sector will most likely continue to pursue individual initiatives in waste management and therefore demonstrate a willingness to pay some costs. 		

TABLE A10.3
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Extended 3Rs Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Some small IC&I generators participate in curbside Blue Box system in Toronto and Caledon. There would likely be continual interest to participate.</p> <p>Potential significant increase in the proportion of major IC&I waste generators that source separate dry and wet recyclables.</p> <p>System 4 regulations will force IC&I waste generators to participate in waste and packaging audits, reduction plans and mandatory source separation (in particular dry materials). Many of these IC&I waste generators have voluntarily implemented these initiatives. Participation by smaller generators is not as high because of lack of resources (financial and human) and smaller economies of scale.</p> <p>Potential for IC&I associations to increase their level of participation and their members.</p>	<p>Willingness to participate, generally a positive attitude and a degree of willingness to pay for waste management measures by some IC&I generators. Potential negative attitudes towards these more comprehensive regulations.</p> <p>It is likely larger IC&I generators will be willing to pay and participate to a higher degree than small generators because of greater access to resources, larger economies of scale and experience in waste management.</p> <p>Where Blue Box service is available, small businesses will be likely to participate.</p> <p>IC&I generators will likely increase their level of composting provided compost is continually accepted.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Most very small institutions and businesses should be excluded under this system. Participation will be increased over Systems 1 and 2. Larger IC&I generators may actively support the market development policy. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Likely to be negative attitudes and perceptions on the part of some IC&I waste generators to the increased level of regulation. In particular, from generators that would be excluded under System 2.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and Perceptions Towards 3Rs	<p>IC&I generators of compost waste will be more willing in the future to pay for composting providing these facilities continually accept the material. The periodic closing down of these facilities is creating difficulties for IC&I generators.</p> <p>Grocery and food service industry are interested in donation of food to reuse organizations, but are concerned about possible liability issues. Implementation of "Good Samaritan" legislation would address this concern.</p> <p>Potentially negative attitudes on the part of IC&I waste generators to System 4 regulations, in particular if markets are not well developed.</p>		
Willingness to Pay	<p>The IC&I sector will probably not be enthusiastic, but will comply with the extra costs imposed by the regulations.</p> <p>The IC&I sector will most likely continue to pursue individual initiatives in waste management and therefore demonstrate a willingness to pay some costs.</p>		

TABLE A10.4
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Expanded 3Rs Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Some small IC&I generators participate in curbside Blue Box system in Toronto and Caledon. They would likely continue to participate. Potential significant increase in the proportion of major IC&I waste generators that source separate dry recyclables. System 5 regulations will force IC&I all waste generators to participate in waste and packaging audits, reduction plans and mandatory source separation (in particular organic). Some IC&I waste generators have voluntarily implemented these initiatives. Participation by smaller generators may not be as high because of lack of resources (financial and human) and smaller economies of scale. Potential for IC&I associations to increase their level of participation and their members' participation. 	<p>Willingness to participate, generally a positive attitude and a degree of willingness to pay for waste management measures by some IC&I generators. Potential negative attitudes towards mandated organic waste generation on the part of small and independent IC&I generators.</p> <p>It is likely larger IC&I generators will be willing to pay and participate to a higher degree than small generators because of greater access to resources, larger economies of scale and experience in waste management.</p> <p>Where Blue Box service is available, small businesses will be likely to participate.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Participation will be increased over Systems 1, 2 and 3. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Likely to be negative attitudes and perceptions on the part of some IC&I waste generators on the increased level of regulation. In particular, from small and independent generators of IC&I organic waste.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Attitudes and Perceptions Towards 3Rs	<p>IC&I generators of compost waste may be more willing in the future to pay for composting providing these facilities continually accept the material. The periodic closing down of these facilities is creating difficulties for IC&I generators. The feasibility of this system will be based on continual acceptance of large volumes of IC&I organic waste.</p> <p>Grocery and food service industry are interested in donation of food to reuse organizations, but are concerned about possible liability issues. Implementation of "Good Samaritan" legislation would address this concern.</p>		
Willingness to Pay	<p>The IC&I sector may be opposed to the extra costs imposed by the regulations.</p> <p>The IC&I sector will most likely continue to pursue individual initiatives in waste management and therefore demonstrate a willingness to pay some costs.</p>		

TABLE A10.5
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY

: Greater Toronto Area

SYSTEM

: IC&I Expanded 3Rs with Organics Regulations

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<p>Some small IC&I generators participate in curbside Blue Box system in Toronto and Caledon. There would likely continue to participate.</p> <p>Potential significant increase in the proportion of major IC&I waste generators that source separate dry recyclables.</p> <p>System 5 regulations will force IC&I waste generators to participate in waste and packaging audits, reduction plans and mandatory source separation (in particular organic). Some of these IC&I waste generators have voluntarily implemented these initiatives.</p> <p>Participation by smaller generators is not as high because of lack of resources (financial and human) and smaller economies of scale.</p> <p>Potential for IC&I associations to increase their level of participation and their member's participation.</p>	<p>Willingness to participate, generally a positive attitude and a degree of willingness to pay for waste management measures by some IC&I generators. Potential negative attitudes towards mandated organic waste separation on the part of small and independent IC&I generators.</p> <p>It is likely larger IC&I generators will be willing to pay and participate to a higher degree than small generators because of greater access to resources, larger economies of scale and experience in waste management.</p> <p>Where Blue Box service is available, small businesses will be likely to participate.</p> <p>IC&I generators will likely increase their level of composting provided compost is continually accepted.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Participation will be increased over Systems 1, 2 and 3. Larger IC&I producers may actively support market development policy. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Likely to be negative attitudes and perceptions on the part of some IC&I waste generators to the increased level of regulation. In particular, from small and independent generators of organic waste (e.g., small grocery stores).

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and Perceptions Towards 3Rs</p>	<p>IC&I generators of compost waste may be more willing in the future to pay for composting providing these facilities continue to operate and accept the material. The periodic closing down of these facilities creates difficulties for IC&I generators. The acceptance of this system in part will be based on continual acceptance of large volumes of IC&I organic waste.</p> <p>Grocery and food service industry are interested in donation of food to reuse organizations, but are concerned about possible liability issues. Implementation of "Good Samaritan" legislation would address this concern.</p> <p>Potentially negative attitudes on the part of IC&I organic waste generators (in particular smaller ones) to System 5 regulations, because of added costs and operational changes.</p>		
<p>Willingness to Pay</p>	<p>The IC&I sector may be opposed to the extra costs imposed by the regulations.</p> <p>The IC&I sector will most likely continue to pursue individual initiatives in waste management and therefore demonstrate a willingness to pay some costs.</p>		

TABLE A10.6
SYSTEM NET EFFECTS : SOCIAL ACCEPTABILITY

REGIONAL MUNICIPALITY : Greater Toronto Area
SYSTEM : IC&I Processing of all IC&I Waste

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion 1 : Social Acceptability			
Participation in 3Rs	<ul style="list-style-type: none"> Some small IC&I generators will participate in curbside Blue Box system in Toronto and Caledon. They will likely continue to participate. System 6 regulations will force IC&I waste generators to participate in waste and packaging audits, reduction plans and mandatory source separation. Many of these IC&I waste generators have voluntarily implemented these initiatives. Participation by smaller generators is not as high because of lack of resources, (financial and human) and smaller economies of scale. Potential for IC&I associations to increase their level of participation and their member's participation. 	<p>Willingness to participate, generally a positive attitude and a degree of willingness to pay for waste management measures by some IC&I generators. Potential negative attitudes towards these very comprehensive regulations, in particular on the part of small and independent IC&I waste generators.</p> <p>It is likely larger IC&I generators will be willing to pay and participate to a higher degree than small generators because of greater access to resources, larger economies of scale and experience in waste management.</p> <p>Where Blue Box service is available, small businesses will be likely to participate.</p> <p>IC&I generators will likely increase their level of composting provided compost is continually accepted.</p>	<p><u>Advantages</u></p> <ul style="list-style-type: none"> This system will attain the highest participation rate because of regulation. Larger IC&I producers may actively support market development policy. <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Likely to be very negative attitudes and perceptions on the part of some IC&I waste generators because of the increased level of regulation.

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Attitudes and Perceptions Towards 3Rs</p>	<p>IC&I generators of compost waste may be more willing in the future to pay for composting providing these facilities continue to operate and accept the material. The periodic closing down of these facilities creates difficulties for IC&I generators. The feasibility of this system will be based on continual acceptance of large volumes of IC&I organic waste.</p> <p>Grocery and food service industry are interested in donation of food to reuse organizations, but are concerned about possible liability issues. Implementation of "Good Samaritan" legislation would address this concern.</p> <p>Potentially negative attitudes on the part of many IC&I waste generators (in particular small ones) to System 6 regulations, because of added costs and operational changes.</p> <p>All IC&I generators will be likely to be supportive of market development policy.</p>		

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Willingness to Pay	<ul style="list-style-type: none"> The IC&I sector may be very opposed to the extra costs imposed by these regulations. The IC&I sector will most likely continue to pursue individual initiatives in waste management and therefore demonstrate a willingness to pay some costs. 		

SCHEDULE B

Regional Municipal Staff Interview Summary

SCHEDULE B:

REGIONAL MUNICIPAL STAFF INTERVIEW SUMMARY

1.0 Purpose of Interviews

Regional Municipal staff were interviewed to obtain their views on the obstacles and potential for increased 3Rs diversion in their Regions. The interviews are to be supplemented by the GTA Resident Survey.

2.0 Representative Selection Criteria/Approach

Regional staff interviews were conducted by Hardy Stevenson and Associates in April, 1993. Staff in the five Regions were identified by Hardy Stevenson and Associates in consultation with RIS. They were determined to be the most knowledgeable staff on 3Rs and/or were familiar with the GTA 3Rs Analysis Project.

Those interviewed included senior planners, waste management commissioners and administrators of a Region's waste management program.

The regions had waste management/diversion programs that included:

- central and local composting sites,
- blue box collection programs,
- MRFs,
- Household Hazardous Waste Depots and,
- garbage collection services.

The thirty minute telephone interview for Regional representatives comprised eighteen questions (Schedule D) concerning:

- existing, possible and/or pending regional 3Rs policies,
- existing, possible and/or pending lower tier municipal 3Rs policies,
- perceived and/or documented 3Rs attitudes and behaviours in the residential and IC&I sectors,
- obstacles to increased waste diversion in the residential and IC&I sectors.

- . existing, possible and/or pending waste management/diversion initiatives and,
- . division of responsibility problems between the region and local municipalities.

3.0 List of Regional and Municipal Representative Key Contacts

The following is a complete list of regional and municipal representatives interviewed and the date of the interviews.

1. Region of Durham
Peter Watson - Public Works
April 15, 1993
2. Peel Region
Lisa Morgan-Fraser
Glenn Williams
April 16, 1993
3. Halton Region
Vic Lesnicki
Art Mercer
April 19, 1993
4. Metro Toronto
Andy Pollóck
April 19, 1993

York Region was contacted on April 15, 1993. Upon request, the interview guide was faxed by Elizabeth Margles of Hardy Stevenson and Associates to Jeff Flewelling for deliberation and consultation with the Region's Board. Three telephone calls from Mark Stevenson to Jeff Flewelling ensued. York Region did not respond.

4.0 Summary of Key Points and Findings

None of the Regions surveyed have implemented official or draft 3Rs policies, principles or guidelines. None of the Regions' area municipalities have mandatory 3Rs by-laws. Peel and Halton Regions have implemented landfill bans on certain materials. Halton Region has a landfill ban on recyclable material.

Three of the four Regions (Durham, Peel and Metro) surveyed have conducted (either internally or through contracting out) surveys to assess 3Rs attitudes, behaviours, and the success/influence of educational or promotional programs. Durham and Peel Regions mentioned the need for continued education and promotion to overcome the obstacles to increasing waste diversion in the residential sector.

Three Regions (Durham, Peel, Halton) mentioned that people seem to believe that they are participating enough in 3Rs activities and have no more time for increased 3Rs activities. This is seen as a barrier to increased waste diversion.

Three Regional representatives (Peel, Halton and Metro) cited the continued cross border hauling of IC&I waste as a barrier to increased waste diversion.

Peel and Halton Regions noted the attempt to unload or place inappropriate waste in landfill as an obstacle to increased waste diversion.

Peel and Halton Regions noted the inclusion of contaminated material in blue boxes as an obstacle to increasing waste diversion.

Peel and Halton Regions noted an entanglement of jurisdictional responsibilities between Regions and area municipalities. Durham and Metro Regions were satisfied with the current division of responsibilities between the Region and area municipalities.

Centralized composting facilities were noted by two Regions (Peel and Halton) as components of a five year 3Rs plan.

More effective Household Hazardous Waste programs are initiatives for two Regions (Peel and Halton).

Direct cost systems, or pay-by-bag garbage collection programs, are being considered by Peel and Halton Regions. Metro has suggested this as a consideration to its area municipalities but has no jurisdiction to enforce such a program.

Peel and Halton Regions are considering some form of mixed waste processing and/or collection program. Durham has not considered this type of program. Metro will not implement this type of program because of capital costs, the failure rates of existing mixed waste facilities, and because a mixed waste facility runs contrary to its philosophy of personal involvement in waste diversion.

Three out of four Regions surveyed (Durham, Peel and Metro) indicated that 3Rs initiatives are stalled because they have been waiting for some time for direction, guidelines and policies from the Province.

5.0 Summary of Findings by Region

5.1 Durham Region

Currently, Durham Region and its local municipalities have no official or draft 3Rs policies, principles or guidelines. The Region is waiting for direction from the MOEE regarding official guidelines for 3Rs initiatives.

In the early 90's, Durham Region conducted a telephone survey to gauge the impact of the Region's 3Rs promotion programs. Approximately two hundred households were surveyed.

Obstacles to increasing the amount of waste diverted in the Residential sector include the public perception that enough is being accomplished through the existing blue box program(s). Therefore, the Region must continue its promotional and educational programs to inform the public of the continued need for waste diversion/management.

Durham Region has little involvement with the IC&I sector except for helping with waste audits. The Region owns no landfill and takes an insignificant amount of IC&I recyclables. There is no reason to conclude that this situation will change.

Garbage collection is a municipal rather than Regional jurisdiction. Therefore, the Durham representative could not speak to the issue of a possible direct cost or pay-by-bag collection system. However, the Region is not aware of any concerns of the lower tier municipalities regarding a pay-by-bag system.

The Region is not considering:

- . a wet/dry waste diversion program;
- . a mixed waste processing facility; or,
- . a neighbourhood composting facility.

The Region is setting up a fully operational leaf and yard waste composting facility.

There have been no complaints regarding the Regional leaf and yard waste

composting facility. Residents called for information about the facility operations. The Region sent out a letter explaining the purpose of the facility, and invited interested parties for a tour of the facility. The same letter was sent regarding the Regional MRF. No complaints were registered.

Neither the leaf and yard waste composting facility nor the Regional MRF can be expanded because the sites are too small.

The Region experiences no inefficiencies or barriers to waste diversion programs because of the division of responsibilities between the Region and lower tier municipalities.

5.2 Peel Region

Peel Region does not have an official 3Rs master plan. The draft 3Rs policy has not been approved.

Peel Region is waiting for clarification from the Province regarding 3Rs initiatives. Until then, there is difficulty in developing policies because the Region's and municipalities' roles will be established once the MOEE regulations are in place.

There are no specific Regional or municipal 3Rs by-laws, except IC&I bans on landfill and charges for those who do not comply.

Mississauga hired the Long Group to survey residents who participated in the wet/dry pilot project. Community meetings were held to discuss participation or the lack thereof. The Mississauga Clean City Campaign will be conducted with kitchen table chats of approximately 100 pilot area participants.

The Region hired the Long Group to survey residents and businesses in an informal meeting environment. The survey was designed to assess knowledge of waste management, government roles, and, where and how information regarding waste management was/should be disseminated.

The Peel Region representatives highlighted numerous obstacles to increasing waste diversion in the residential sector. These included:

- people in larger urban centres perceive more of a time constraint to participating in 3Rs programs;

- reaching people efficiently with communication, advertising and promotion initiatives is difficult in large urban centres, and more difficult with nine or ten different languages represented;
- backyard composting suffered because media reports linked composting to a rodent problem;;
- direct cost systems are difficult to implement because waste management is a political issue and a service that people traditionally have not paid for properly.

Peel Region noted two obstacles to increasing waste diversion in the IC&I sector: a continued attempt to unload banned material at landfill; and, continued waste hauling over the border to the United States.

Peel Region representatives identified many 3Rs initiatives that will or may take place over the next five years:

- Peel Region is examining the feasibility of a joint venture with the Region of Halton for a centralized composting facility.
- Homogenization of blue box programs and direct cost systems for the residential sector may occur.
- Disentanglement between the Region and the municipalities will occur.
- Community recycling centres and Household Hazardous Waste depots at these centres will be established throughout the Region. This system will include bins for specific wastes at local areas such as shopping malls, and will be provided to local businesses.
- Neighbourhood recycling depots will be established with street-locked collection containers in the downtown cores and in multi-residential dwellings.
- A Regionally owned but privately operated MRF will be constructed.

Peel Region is currently researching possible direct cost initiatives for garbage collection services.

The centralized composting facility would be a food/yard waste, 3 stream wet/dry

facility.

Brampton is considering a neighbourhood composting facility.

There were a few odour complaints regarding the Region's leaf and yard waste composting facility. The effect was mitigated with a more frequent turning of the compost material.

The Peel Region representatives identified many inefficiencies and/or barriers to increased waste diversion created by the current division of responsibilities between the Region and lower tier municipalities:

- The current division requires more effort to coordinate 3Rs programs and initiatives.
- If waste collection was centralized, the Region could save money.
- Disentanglement would free up staff to work on future programs.
- Streamlined programs would result in employees being more cognizant of their specific responsibilities.

As long as there is a clear distinction of responsibilities between the Region and municipalities, the division can be helpful.

5.3 Halton Region

Halton Region has banned certain materials from landfill as a 3Rs policy. The Region has also banned recyclables from landfill, which forces residents to recycle.

No surveys have been undertaken to assess 3Rs attitudes and/or behaviour in the Region.

The Halton Region representatives identified some obstacles to increased waste diversion initiatives in the residential sector:

- More and more materials are being added to the recyclable stream and residential blue boxes are not large enough. The boxes are overflowing.
- People are tired from work at the end of the day and are not receptive to

further directives about what they **have** to do.

Obstacles to increased waste diversion in the IC&I sector include:

- Less expensive disposal fees in the U.S., which attract the Canadian IC&I sector and waste haulers.
- Small businesses claim they cannot afford to participate in IC&I waste management/diversion initiatives but they produce too much waste to participate in residential blue box programs, which results in inefficient waste diversion and streaming.

Over the next five years, Halton Region:

- is considering a wet/dry collection program;
- will increase the efficiency of Household Hazardous Waste management with a more effective but more expensive program;
- will continue to educate the public to "buy only what you need";
- will consider banning the collection of grass;
- is considering implementing a direct cost system;
- hopes to see new markets for recycled material; and,
- hopes to see an IC&I shared model approach to dividing waste management/diversion costs and responsibilities between the Province and the IC&Is that generate the waste.

Oakville has implemented a bag limit for garbage pick-up. Burlington will implement a bag limit in May, 1993. Halton Region is studying lifting mechanisms for collection trucks that would weigh bags. Halton is considering implementing a tag system that would limit the number of bags a household could put out according to the number of tags issued.

There currently exists a user pay system at most of the Region's drop-off centre

depots, regardless of the weight of the waste. At one depot, a cost is applied only after 150 kg.

There is general agreement in the Region and lower tier municipalities that a direct cost system is feasible.

The Region might consider a 3 stream (kitchen/yard organics, recyclables and garbage) wet/dry diversion program in two years. Pick up of food waste will remain a component of an every week system.

The centralized composting facility will be a mixed waste processing facility. The site will also include a Household Hazardous Waste depot and landfill.

The Region is not considering neighbourhood composting facilities, although each municipality has a leaf and yard waste composting facility.

There were significant odour complaints regarding the Region's leaf and yard waste composting facility. The effect has been mitigated with the private contracting of facility operations.

There is no regionally owned MRF.

The Halton Region representatives noted that siting an expanded or other waste management/diversion facility is difficult because of the siting process and the need for an appropriate piece of land with an adequate surrounding buffered zone.

Halton Region will be moving to a single tier waste management system where the Region would manage collection and disposal of residential waste. Currently, the Region is responsible for disposal and the municipalities are responsible for collection. There are difficulties in coordinating 3Rs programs with the current split jurisdiction. There is, however, a benefit to the current division of responsibilities between the Region and municipalities from the customer service point-of-view, i.e., local foremen are more accessible to answer concerns than in a larger Regional infrastructure.

The Halton representatives cited a further need for door-to-door education of residents regarding the 3Rs.

Halton is considering water reduction as a 3Rs initiative.

5.4 Metro Toronto

Metro had been preparing detailed draft policies as part of their Draft Waste Management Plan for the SWEAP program, but the IWA announcement has delayed consideration of the Plan. The Plan has not been approved by Council.

There are no 3Rs by-laws in effect for the residential sector. IC&I is not within Metro's jurisdiction.

There have been 3Rs attitudinal and behavioral surveys conducted by Poole-Adamson, Metro Works Committee and Virginia Maclaren.

The Metro Toronto representative highlighted two obstacles encountered by Metro to increasing waste diversion in the residential sector:

- The cost of programs and cost sharing with area municipalities. The program cost for blue box recycling is currently significantly greater than that for landfilling.
- An existing agreement states that after five years, collection costs are to be passed from Metro to the area municipalities. This creates a burden for area municipalities since the recycling fleet has to be replaced.

One obstacle for increasing waste diversion in the IC&I sector was identified:

- The low U.S. tipping fees attract cross border waste hauling. There is no incentive for Ontario manufacturers to participate in expensive recycling strategies if they can haul waste over the border at a significantly lower cost.

Over the next five years Metro must contemplate the costs of continued 3Rs waste diversion programs, including incorporating the cost of recycling into the cost of the product to be passed on to the consumer.

In the IC&I sector over the next five years:

- There should be changes in the export situation and marketing of recycled products.
- To be financially feasible for private sector collection, waste materials must have a high recycling value. Only a few materials currently do. New markets must be identified and encouraged.

The proposed 3Rs regulations would help with both these issues by limiting export and stimulating new markets.

Metro has suggested to area municipalities that they consider direct cost programs for garbage collection. However, Metro has no jurisdiction to enforce these suggestions.

The administration and implementation of a direct cost system might be complex and therefore difficult to execute. The costs of starting and sustaining such programs might outweigh their possible benefits.

Metro completed a 3 stream (organics/recyclables/garbage) wet collection pilot project that included alternate week pick up of some streams, maintaining every week collection of food waste because of health and odour concerns. The results of the project are currently being evaluated.

A centralized mixed waste processing facility is not being considered by Metro due to the high failure rate of other similar facilities, coupled with the extreme capital costs associated with a mixed waste facility. Moreover, the Metro representative noted that mixed waste collection is contrary to Metro's 3Rs philosophy of personal involvement.

Metro has some composting systems at multi-residential dwellings using a 3 bin system. Because there have been many problems with municipal composting facilities, neighbourhood composting facilities are unlikely.

There is a centralized composting facility at the North Dufferin Transfer Station, but it is not operating since the wet collection pilot project has just been completed. There were some complaints about odour emanating from this facility.

There have been no complaints registered regarding the operation of the MRF.

The division of responsibilities between Metro and area municipalities has worked well for both jurisdictions. If the area-municipalities had to assume the costs of blue box programs, they might re-evaluate the system and move to less frequent collection.

The centralizing of recycled materials collection and markets has given Metro more leverage in the market, since it can offer greater volumes and a steadier supply of materials.

6.0 Regional Municipal Representative Interview Survey

Region:

Contact Name:

Telephone #:

Date:

Introduction

1. Has Regional Council approved any 3Rs policies?
(If yes may we obtain a copy)

(If no) Has the Region developed draft 3Rs policies, principles or guidelines?

2. Has the Region or any of the local municipalities approved any 3Rs by-laws
(e.g., mandatory recycling by-laws)?
3. Has the Region or the lower tier municipalities surveyed residents' attitudes
to 3Rs?
(If yes, may we obtain a copy of the survey)
4. What do you think are the greatest obstacles to increasing the amount of
waste diverted in the GTA by Residents and the Institutional, Commercial and
Industrial Sector?

Greatest obstacles to diversion by residents?

Greatest obstacles to diversion by the Institutional, Commercial and Industrial
Sector?

5. Over the next 5 years, what changes do you think might take place in the GTA in residential 3Rs programs and in IC&I programs?

Changes in residential 3Rs programs?

Changes in Institutional, Commercial and Industrial 3Rs Programs?

6. Some municipalities have considered charging households by the bag for garbage or limiting the number of bags that a household can put out for pick-up each week. Has the Region considered charging households by the bag for garbage or placing a limit on the number of bags of garbage that each household is allowed to put out for pick-up?

If yes, probe for the key considerations in the Region's discussions.

7. Have any concerns been expressed by the lower tier municipalities about a pay-by-the-bag garbage system or on limiting the number of bags of garbage allowed?

8. Has the Region considered a wet/dry waste diversion program?

9. If yes, how many streams were considered?

Why?

(Probe re: two week storage of food waste)

10. Has the Region considered a system that would require a mixed waste processing facility?

If yes, probe for difficulties and benefits of the siting and operation of the facility were identified?

11. Neighbourhood composting facilities have been considered in some municipalities. Has the Region considered establishing neighbourhood composting facilities?

If yes what difficulties and benefits were identified in establishing a neighbourhood composting facility?

12. Are you aware of any complaints or concerns expressed about the Region's leaf and yard waste composting facility?
13. If there is an MRF in the Region:

Are you aware of any complaints or concerns expressed about the facility?

14. Can you think of any difficulties with expanding your composting/MRF facility or with constructing larger composting or MRF facilities elsewhere in the GTA?

Do you think any of the difficulties you mentioned are related to the location of the facility?

(e.g. types of land)

15. Does the current division of 3Rs responsibilities between the local municipal government and the Region create any inefficiencies or other barriers to increasing the amount of waste diverted?

(Interviewer Note: Disentanglement is the term used to improve coordination of the 3Rs program).

16. Does the current division of responsibilities create any benefits?
17. Can you identify any other problems with the implementation of the municipality's 3Rs policies or principles? (e.g. union/management problems)
18. Do you have any other concerns or comments regarding the 3Rs program in the region?

SCHEDULE C

IC&I Association Interview Summary

SCHEDULE C:

IC&I ASSOCIATION INTERVIEW SUMMARY

1.0 Purpose of the Interviews

Interviews of representatives of the IC&I sector were required

- to obtain information on the IC&I sector's attitudes and opinions on 3Rs activities affecting participation in existing 3Rs activities/programs, including:
 - attitudes toward 3Rs (eg., benefits to the company/organization)
 - knowledge of and current involvement in 3Rs activities
 - reasons for type and level of involvement
 - barriers to and opportunities for participation (e.g., costs, union procedures, insurance difficulties)
 - expected future 3R behaviour
 - input and suggestions to 3Rs options
 - employment changes by type of activity
- to obtain information on the acceptability of a number of future 3Rs waste diversion options and their potential effects on institutional, commercial and industry operations.

2.0 Association Selection Criteria/Approach

IC&I association interviews were conducted by Hardy Stevenson and Associates (HSA) in April and May, 1993. The IC&I associations interviewed were identified by Hardy Stevenson and Associates and Resource Integration Systems (RIS) based on an analysis of IC&I waste generators in the Greater Vancouver Regional Districts (GVRD). In consultation with RIS, HSA highlighted those IC&I sectors which generated the most waste in the GVRD based on RIS's assumption that the major waste generators would be the same for the GTA. Associations were identified for each IC&I sector. In addition, HSA identified associations which may not represent a single IC&I sector, but which has a definite interest in waste management (e.g., The Packaging Association of Canada).

The forty-five minute telephone interview (See Schedule C-22) for IC&I representatives was comprised of twenty-three questions regarding:

- . number of member associations,
- . typical types of wastes generated by member associations,
- . development of and participation in waste management initiatives of individual associations and parent associations,
- . obstacles and opportunities to increased waste diversion in the IC&I sector and implementation of 3Rs programs,
- . regulations that have affected member associations,
- . future 3Rs goals for member associations and parent associations,
- . factors that would increase 3Rs initiatives and participation, and,
- . specific types of waste diversion programs.

Table 1
Data Sources

SIC Description	Major IC&I Group	% Waste Generated
Retail - Food, Beverage, Drug, & Tab.	Retail	12.55
Health & Social Services	Non-Commercial Services	9.10
Food & Beverage, Service	Commercial Services	8.69
Transportation Industries	Transportation, Communication, Utilities	7.95
Government Services - Local	Public Administration	6.05
Education Services Industries	Non-Commercial Services	3.84
Retail Auto Sales, Parts, Service	Retail	3.4
Manufacturing - Food	Manufacturing	2.94
Business Services Industries	Commercial Services	2.77
Accommodation Services	Commercial Services	2.55
Retail - Furniture & Appliances	Retail	2.41
Manufacturing Industry - Paper	Manufacturing	2.24
Manufacturing Industry - Wood	Manufacturing	2.07

Source: adapted from CH 2M Hill, 1993

3.0 List of IC&I Representatives and Key Contacts

The following is a complete list of IC&I associations, representatives and/or key contacts interviewed and the date of the interviews.

1. Ontario Restaurant Association
Constance Wrigley
April 23, 1993.
2. The Board of Trade of Metropolitan Toronto
Rosemary Colucci
April 23, 1993.
3. The Packaging Association of Canada
Larry Dvorkin
April 26, 1993.
4. Canadian Federation of Independent Businesses
Ted Mallet
April 28, 1993.
5. The Toronto Board of Education
Mieke Foster
April 29, 1993.
6. Toronto Construction Association
Paul Lasanti
April 29, 1993.
7. Canadian Council of Grocery Distributors
Arlene Lannon
May 22, 1993.

NB: Three other associations were contacted during the interview period. Interviews were not conducted because the associations' representatives did not return repeated telephone calls. In 3 cases the associations requested that the questionnaire be sent to them for review before they could commit to an interview.

4.0 Summary of Key Points and Findings

The varying and distinct enterprises and associations interviewed provided an equally diverse amount of information. However, there were some key common findings regarding the opportunities and constraints to increased waste diversion.

4.1 Opportunities

- Association members support waste reduction as a goal for the associations and individual member businesses.
- The associations have developed or provided educational/promotional materials to their members on 3Rs.
- There have been no legal liability problems due to 3Rs initiatives.
- There have been significant changes in day-to-day operations of different businesses in the IC&I sector as a result of 3Rs programs.

4.2 Constraints

- All aspects of waste management represent significant costs to the IC&I sector. Member businesses are concerned with the costs of 3Rs initiatives and regulations.
- The enterprises within the IC&I sector want an increased consultative role with the MOEE to communicate their specific concerns, and to have input to policy/guidelines where appropriate.
- The lack of support by government, staff priorities, and lack of market infrastructures are obstacles to increasing waste diversion programs in the IC&I sector.
- Tipping fees were cited as a regulation/policy that has created a competitive disadvantage for GTA companies.
- There have been significant changes in the day-to-day operations of different associations in the IC&I sector as a result of 3Rs programs (e.g. sorting waste).

- Economies of scale are important. Larger IC&I generators will likely be able to implement programs with relatively greater ease than smaller IC&I generators.

5.0 Summary of Findings by Association

5.1 Ontario Restaurant Association

The Ontario Restaurant Association has 2,700 members in its organization; fifty percent have operations in the GTA.

The waste produced by member businesses typically includes thirty nine percent organic waste (recent Canadian Restaurant Association study). The remaining sixty one percent of waste is made up primarily of paper, corrugated cardboard, glass bottles and plastics.

Among members there is strong support for waste reduction as a business goal, if only to avoid having to pay high tipping fees.

The Ontario Restaurant Association representative measured member involvement in 3Rs initiatives as follows:

- 50% implementing packaging changes to reduce waste
- 30% purchasing practices promoting 3Rs
- 80% reducing materials used
- 80% separating materials for garbage and recycling
- 70% using recycled materials
- 20% implementing technological changes to reduce waste
- 75% contracting waste haulers to take recyclables

The Ontario Restaurant Association, as the parent organization, distributes any information regarding 3Rs programs, pilot projects and workshops to member businesses.

The Ontario Restaurant Association representative rated the importance of the following in member businesses' 3Rs involvement:

- Employee Interest Very Important
- Cost Competitiveness Very Important

EVALUATION:	
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)</p> <ul style="list-style-type: none"> · Nuisances and inconveniences (odour, pests, rodents, etc.) associated with recycling for residents are negligible (Bagby, 1993). · All the yard waste and the small amount of vegetable waste is sent to the centralized composting facility. This facility is located in a rural area, near the King County landfill and processes approximately 60,000 tons/year. Local residents have complained about the traffic and odour. State health and ecology officials have made changes in the system to address the odour problem. <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <ul style="list-style-type: none"> · Seattle SWU employs 144 persons.
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/-Attitudes)</p> <ul style="list-style-type: none"> · City of Seattle is characterized by an ethnically diverse population, high proportion of single-family dwellings, urban/suburban mix and a population of approximately 500,000. It probably resembles some of the lower-tier municipalities in Metropolitan Toronto, that do not have a preponderance of high rise apartments. · Seattle residents have had a long history of paying for waste management services. Before the implementation of the recycling programs, residents paid for garbage collection (billed system not taxes). This probably made the transition to a volume-based user pay 3Rs program easier than if residents paid for garbage collection through local taxes. Residents in Seattle could understand fairly quickly the financial incentive to recycling and waste reduction. GTA residents do not have experience in paying for their garbage collection. A transition period will be necessary for people to come to understand 3Rs user pay systems. Public consultation and education would be important components of the system. · Overall, some aspects of the Seattle program are applicable to the GTA.

EVALUATION:	
Reasons for Successes/Lessons Learned:	<ul style="list-style-type: none"> · Amongst persons who were familiar with the program, knowledge of what materials could be recycled in the program varied from glass bottles and jars (92% correct) to litre-size plastic soft drink bottles (56% correct). There was still significant misperceptions about preparation of materials. (eg. 50% of those familiar with the program incorrectly thought that labels must be removed from glass bottles and jars in order to recycle them). Oddly, the misconceptions are stronger among people who recycle a greater variety of items (Elway Research Inc., 1991). · Customers not participating tended to: live in a one or two-person household, had not attended college, earn less than \$30,000/yr. In addition, these program non-participants were apt to say: they produce too little to make recycling worthwhile (24%), have inadequate storage space (29% and 21% for renters), worry about pests that might be attracted to stored recyclables (27%) and do not have enough time (18%). Some program non-participants do recycle some materials, but not through the city program (Bagby, Diangson, and Patterson: 1992). · Continual education about the program is needed: some 38% of the surveyed non-participants had not heard of the program, there were multi-language problems, and there were continual misperceptions about paper sorting (almost half). 148 of the 642 people contacted for the survey could not complete the telephone survey because they had problems answering in English (Elway Research Inc., 1991). · 38% of the non-participants were not aware of the program compared to 8% overall. Hispanic and Native American respondents were more likely to agree strongly that they didn't know exactly what can be recycled (30%). However, participants and nonparticipants appeared equally sure about what's recyclable (Elway Research Inc., 1991).

EVALUATION:	
Reasons for Successes/Lessons Learned:	<ul style="list-style-type: none"> · With the implementation of a volume-based user-pay system, there were some instances of illegal dumping, but the problems were not considered to be extensive. However, the Utility does maintain a policing system for illegal dumping. Dumped garbage is sorted through to identify the source and fines can be issued (Breckinridge and Skumatz, 1990) (Bagby, 1993). · Subsidized rates are available for low-income and elderly customers. The City of Seattle identifies and maintains a data bank of these people and lower rates are available not only for solid waste, but also electricity, water, and sewage as well. Elderly people are also permitted to utilize a backyard pick-up service (Bagby, 1993). · Survey of Seattle residents provided valuable information to help target households with lower participation rates. Focus groups were used to follow-up on the survey results, for greater analysis (Bagby, Diangson, and Patterson, 1992). · People who participated in the city-sponsored curbside recycling collection service tended to possess these socio-economic characteristics: college degree, household income above \$30,000, 4 or more persons in their household, the smallest containers for waste disposal (Bagby, Diangson, and Patterson: 1992). · The reported number of recovered items more strongly correlated to accurate knowledge of the curbside collection program rather than positive attitudes about household recycling. This suggests that some people who express less positive attitudes about recycling, still go ahead and recycle, as long as they know how to do it (Bagby, Diangson, and Patterson: 1992).

EVALUATION:

Reasons for Success/Lessons Learned:

(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)

- As planning progressed it was clear more staff were needed in public information, marketing and customer service, owing to the large number of enquiries. A variety of public information tools were used to reach customers - mailers, flyers, media events, public meetings, telephone response, message machines. An annual waste reduction survey is carried out to monitor the program (Gale, 1991).
- Apartments are more problematic than single-family dwellings for three primary reasons. First, operationally, apartments are more costly for waste hauling firms. Second, many tenants do not pay the waste utility bill and therefore do not economically benefit from source separation, even though the landlord does. Third, there is a lack of space in apartments and apartment buildings for recyclable storage (Bagby, 1993).
- Stable markets for recyclables is important. Incentive based system (user pay) requires choice of options, convenience and micro-economic decision-making. The underlying belief of such a rate structure is that customers will change behaviour more rapidly and substantially if they save money from the changes (Gale, 1991).
- A Pilot Weight-Based Project was implemented, whereby residents would pay according to the weight of their garbage rather than the volume. 50% of the participants preferred the new system, 25% preferred the old, and 25% were non-committal. Currently, there are no plans to implement the weight-based system. There seem to be a high incidence of technological problems (e.g. bar codes on cans are improperly read) (David, 1991).
- Commercial businesses and industry primarily use private waste hauling firms. These firms recycle on a purely market basis. There are no bans on certain materials to the landfills. The problem with this sector for the Seattle SWU is that the Utility finds it difficult to obtain information from these firms. This makes analysis and planning much more difficult (Bagby, 1993).

CASE STUDY:	City of Seattle - Comprehensive Municipal Program
Documentation and Attitude/Behavioral Surveys:	<p>McMahon, Jim, ND, 1992, "Variable Collection Rate Crusade Spurs Recycling Programs." <u>World Wastes</u>: 36-40.</p> <p>Resource Integration Systems. <u>Seattle - Selected Case Study</u>. Fact Sheets, 1992.</p> <p>Seattle SWU, 1989, <u>Fact Sheet</u>. Seattle Washington. November.</p> <p>Steuteville, Robert, 1992, "Taking the Lead in Urban Recycling." <u>Biocycle</u>:30-33.</p> <p>Uhlar-Heffner, Gabriella, ND, <u>City of Seattle Yard Waste Collection Programs</u>. Seattle SWU.</p>

CASE STUDY:	City of Seattle - Comprehensive Municipal Program
Documentation and Attitudinal Surveys:	<p>(1. Contact Person, Address, Phone) Jenny Bagby Seattle Solid Waste Utility 505 Dexter Horton Building 710 Second Ave. Seattle, Washington 98104 Phone: (206) 684-7666 Fax: (206) 684-7808</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) Bagby, Jennifer, Ticiang Diangson, and Gene Patterson, 1992, "Participation in Seattle's Curbside Recycling Collection Program." <u>Resource Recycling</u>: 64-71.</p> <p>Benner, Lee and John Watson, 1992, "Preventing Tomorrow's Garbage Today: Waste Reduction Education." <u>Resource Recycling</u>: 46-53.</p> <p>Breckinridge, Cabell and Lisa A. Skumatz, 1990, <u>Variable Rates in Solid Waste - Handbook for Solid Waste Officials. Volume 1 - Executive Summary</u>. Prepared for the Environmental Protection Agency, Seattle, Washington.</p> <p>Croll, Timothy and Diana Gale, 1989, <u>Crisis as Opportunity: The Seattle Solid Waste Revolution</u>. Seattle SWU.</p> <p>David, Mark, 1991, "Collecting Garbage by the Pound." <u>MSW Management</u>: 34-38.</p> <p>Elway Research, Inc., 1991, <u>Participation Study for the Curbside/Alley Residential Recycling Program</u>. Prepared for Seattle SWU.</p> <p>Gale, Diana H, 1990, <u>Testimony Before U.S. House of Representatives. Subcommittee on Transportation and Hazardous Materials</u>. Jan. 17.</p> <p>Gale, Diana H, ND, <u>The Use of Incentives in Solid Waste Planning: Seattle as a Case Study</u>. Seattle SWU.</p>

CASE STUDY:	City of Seattle - Comprehensive Municipal Program
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$ Tonne-Ton Diverted) · Rates account for 88% of the annual budget. · Operations Budget: \$88M/yr US. Capital Budget: \$5 - 10M/yr US. Capital Costs for closing two landfills exceeded \$76M US. O & M costs for curbside recyclable collection range from \$50-60/ton US · Avoided landfill cost is ~\$132/ton

CASE STUDY:	City of Seattle - Comprehensive Municipal Program
Government Involvement:	(Voluntary/Incentives/Bylaws) · The Utility manages the program and uses the County's landfill.
Maximum Potential Participants:	(Population/Households/Employees/Enterprises) · Approximately 500,000. 146,700 Households in Single Family through 4-plexes. 82,800 Households in Buildings with 5 or more units
Targeted Participation:	(Population/Households/Employees/Enterprises) All residents
Actual Participation:	(Population/Households/Employees/Enterprises) · Participation is 93% in the North end of the city and 84% in the South end. · Renters: for 68% disposal charges are part of the rent; 32% pay separate.
Maximum Potential Capture/Diversion:	(Tonnes-Tons/Annum) 1991 total amount of waste generated 750,000 tonnes (approximate).
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) · The overall goal is to attain 40% waste diversion by 1991, 50% by 1993, and 60% by 1998. · The 60% diversion rate is to come from the following sources. Seattle SWU: Waste Reduction - 2%, Curbside Recycling - 8%, Apartment Recycling - 2%, Yard Waste - 9%, Commercial - 10%, Private Haulers: 24%, Self-Haul: 5%.
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) As of 1992 - 40% City-wide average for recyclables is ~291 kg/hhld/yr, City-wide average for recyclables and yard waste compost is ~389kg/hhld/yr. Contaminants in the recycling program are about 6.1 kg/hhld/yr.

CASE STUDY:	City of Seattle - Comprehensive Municipal Program
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <ul style="list-style-type: none"> · Waste Reduction Education, Directories for Retail, Repair and Used Goods Services, Industrial Materials Exchange · The Utility focuses primarily on the residential program. Curbside Recycling (mixed paper, newspaper, glass, aluminum, tin, phone books, boxboard, PET plastic, ONP), Apartment Recycling, Yard Waste, Hazardous Waste Drop Site, Backyard Composting, Appliance and Bulky Item Pick-Up. Food waste is usually put in with garbage, although occasionally with yard waste. Garbage is collected once a week. Yard waste is collected once a month. Recyclables varies. · Implementing an R & D program for more complicated waste items and management issues (eg. recycling of paint). Also implementing a weight-based garbage collection system using bar code technology. · Transportation by private contracted haulers. Multi-compartment trucks. Mechanized Processing Plant. Comprehensive Materials Processing Facility. Centralized Composting Facility located 20 miles southeast of Seattle in rural King County. · Seattle's long-term plan for garbage is to send it by train to a remote arid region 350 miles away (5 days/week).
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation)</p> <ul style="list-style-type: none"> · Historically, citizens of Seattle paid for waste collection. In 1983 and 1986, both landfills the City of Seattle operated were closed. Subsequently, the waste was diverted to the County landfill. By 1987, landfill tipping fees had more than doubled and rates to customers went up 82% in two years. As part of the contract with King County, the city was required to develop an alternative disposal option, or within two years turn over its waste stream authority to the County. The City implemented major organizational changes and used electrical utility staff and thinking to restructure the system (Gale, 1990).

CASE STUDY:	City of Seattle - Comprehensive Municipal Program
DESCRIPTION:	
Location:	<p>(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural)</p> <p>City of Seattle, King County, Washington. 92 square miles. 5,326 persons/square mile. Urban and Suburban Mix. 146,700 Households in Single Family through 4-plexes. 82,800 Households in Buildings with 5 or more units. Employment: 83% in non-manufacturing, 17% in manufacturing</p>
Ownership/Financing:	<p>(Municipal/Private/Not for Profit)</p> <p>· Seattle Solid Waste Utility is a division of the Seattle Engineering Department. Owned and managed as a utility for residential and commercial waste management. Waste collection is contracted out to private haulers. A few private companies also perform garbage and recyclables collection, primarily in the industrial and commercial sectors. The City maintains control over the private companies through its <u>Integrated Solid Waste Management Plan</u>.</p> <p>· Washington state counties are required to prepare solid waste management plans. Cities are allowed to remove themselves from the county plan if they wish to undertake their own. For a number of political reasons, Seattle has separated its waste management activities from King County.</p>
Sector/Purpose:	<p>(Residential/Institutional/Commercial/Industrial)</p> <p>· All sectors, but primarily residential. Commercial and industrial sector is serviced primarily by four collection companies that hold certificates from the Washington Utilities and Transportation Commission (mixed waste, demolition waste and recyclable materials) and are controlled through the city's waste management plan.</p>
Category of 3Rs:	<p>(Reduce/Reuse/Recycle)</p> <p>· All three Rs, but the primary emphasis is on recycling. The strategy for waste reduction is primarily focused on education and promotion. The City also has some reuse services.</p>

EVALUATION:

Replicability in GTA:

(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/-Attitudes)

· Guelph is a medium-sized Canadian city with an urban/suburban mix. The ethnic make-up in the GTA is probably more diverse.

· Strong environmental ethic. City employees believe this is critical to the success of the program.

· The Wet/Dry Project was carried out primarily in neighbourhoods of only single family dwellings and to a much smaller extent in low-income townhouses. The City has targeted both the residential and IC&I sectors for the implementation of its entire system. Its direct replicability to other residential patterns is unclear (Siebel, 1993).

1. In the Guelph Pilot Wet/Dry Project, households were divided into 2-stream and 3-stream systems. In the 2-stream system, one stream is considered the "wet" and includes materials such as all organic waste, food contaminated packages, and sweepings. The "dry" stream includes dry recyclables such as aluminum cans and newspapers and non-recyclables and other potentially recyclable materials. In the 3-stream system, the "wet" stream is made up of food and yard waste, the "dry" stream of dry recyclables, and there is a garbage stream of items that cannot be recycled.

EVALUATION:

Potential Social Impacts:

(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)

· Social Effects of Household System

Bins were considered more convenient than Bags, but there were many inconveniences associated with Bins (Odours - 23%, Snowbanks - 21%, Waste Sticking to the Wet Bin - 15%, difficulties associated with cleaning the Wet Bins (15%). Some respondents (11%) indicated the Green Bins were too large. No major inconveniences were noted with the bags. Bins were preferred over bags (78%) because they were convenient, animal-proof, and reusable. However, bags required less storage space, were easier to handle, and did not remain at the curb. Bins have been selected for the city-wide system, primarily because they will be much cheaper, reusable, and do not generate as much waste as the bags over the long-run. There is a possibility that bin-lining may be permitted with newspaper or paper bags (City of Guelph, 1991).

· There are no identified impacts associated with the compost and recycling facilities at this point. The composting takes place at the landfill and the sorting of the Wet/Dry material is done at the MRF. There is a current capacity of 10 tonnes/day (Siebel, 1993).

(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)

· The proposed composting and MRF-type facilities are located in an institutional zone surrounded by an industrial park.

· Neighbours opposed to the proposed sorting and composting facilities are primarily concerned with possible effects on land values and that the compost would attract birds that may jeopardize planes landing and taking off at a nearby airport (Siebel, 1993).

· Some residents felt proud that Guelph and themselves were involved in such an innovative project.

EVALUATION:	
Reasons for Success/Lessons Learned	<ul style="list-style-type: none">· 2-stream system has greater flexibility for new markets.· In the Pilot Project the low-income townhouses had at first high levels of participation, but later on it dropped off. It is thought that this was a result of resident turnover and not enough communication with the residents.· Participants generally preferred the system they were using, although overall there was a greater preference for the 3-stream. This appears to be because residents think it is a better recovery system. 86% of all respondents were either slightly or very satisfied with the system they were using (Range of 82% - 88% in the four study areas) (City of Guelph, 1991).· Household Hazardous Waste - some residents continue to dispose of HHW at curbside (mostly in dry and garbage). The HHW depot is considered inconvenient to get to, and because of its hours. HHW made up of 0.1% - 0.9% of the dry and 1.2% - 1.6% of the garbage (Siebel, 1993).

EVALUATION:

Reasons for Success/Lessons Learned:

(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)

· The majority of respondents were not willing to pay more to use a 3-stream, rather than a 2-stream. 69% agreed or strongly agreed that Guelph should implement whichever system diverts the most waste even if it costs the taxpayer more than the other options. 63% disagreed or strongly disagreed that convenience is more important than waste diversion. 64% of the respondents indicated that the Wet/Dry Pilot was either slightly or very convenient (49% - 52% in bag areas and 77% - 79% in bin areas). The 2-stream and 3-stream systems were considered equal in convenience. For respondents, cost and convenience were considered equal.

· Recovery rates were lower in the 3-stream areas because residents sorted some of the food waste and recyclables incorrectly into the Garbage container. The garbage stream was comprised of 25% organics and 33% recyclables. When offered the third garbage option, people tend to use it, rather than sorting materials into the designated Wet and Dry containers. With the 2-stream system, people are forced to sort all waste into two containers, both of which are processed to recover materials. The quality of the compost in both the 2-stream and 3-stream systems meets all MOEE standards.

· Participants asked for more specific information on sorting, the success of the program and what happens to materials following collection. "Implementation of Wet/Dry City-wide program will require a high level of personal contact with the public and a very direct monitoring and feedback system (Hoornweg, Otten and Wong, 1993). Ongoing public consultation and education on the success of the system could have been improved. City staff believe there is a great deal of misinformation about the project.

CASE STUDY:	City of Guelph - Pilot Wet/Dry
Cost:	<p>(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted)</p> <p>Projected cost for the city-wide Wet/Dry Program is \$36M. This includes a Wet/Dry, composting, and HHW facility, bins, trucks and an administrative building. The collection system will feature only one driver per truck and two streams/truck (Siebel, 1993).</p>
Documentation and Attitude/Behavioral Surveys:	<p>(1. Contact Person, Address, Phone)</p> <p>Jutta Siebel Waste Management Technician (Pilot Wet/Dry) City of Guelph, Engineering Department City Hall 59 Carden St. Guelph, Ontario N1H 3A1 Interview: March 29</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys)</p> <p>City of Guelph, 1991, <u>City of Guelph Wet/Dry Project - Summary of Preliminary Findings.</u></p> <p>Ministry of the Environment, 1991, <u>Municipal Recycling and Household Conservation Behaviour - A Study of Guelph, Ontario.</u></p> <p>Hoorneweg, Dan, Lambert Otten and William Wong, 1991, "Wet/Dry Household Waste." <u>Biocycle.</u></p> <p>Hopkins, Susan, 1993, <u>City of Guelph 3Rs Programs.</u></p>

CASE STUDY:	City of Guelph - Pilot Wet/Dry
Maximum Potential Capture/Diversion:	<p>(Tonnes-Tons/Annum)</p> <ul style="list-style-type: none"> Wet/Dry System is capable of diverting 70% (by weight) of the residential waste stream and 50% of the total municipal waste disposal. <p>% of organics recovered: 3-stream/Area A (Bins) - 85.4%, 3-stream/Area D (Bags) - 80.7%, 2-stream/Area C (Bins) - 96.5%, 2-stream/Area E (Bags) - 94.5%</p> <p>% of dry recyclables recovered clean: 3-stream/Area A (Bins) - 86.6%, 3-stream/Area D (Bags) - 83.2%, 2-stream/Area C (Bins) - 97.3%, 2-stream/Area E (Bags) - 94.3%</p> <p>% of total waste diverted: 3-stream/Area A (Bins) - 62.2%, 3-stream/Area D (Bags) - 59.9%, 2-stream/Area C (Bins) - 68.2%, 2-stream/Area E (Bags) - 67.4%</p> <ul style="list-style-type: none"> Overall, both the 2-stream and 3-stream achieved high levels of recyclable materials recovered. However, the 2-stream achieved higher levels because there is no garbage option. The Pilot Wet/Dry Program achieved 62% diversion of the residential waste stream (City of Guelph, 1991).
Target Capture/Diversion Rate:	<p>(Percentage or Tonnes-Tons/Annum)</p> <p>The waste projections for the year 2003 are: compost 57,000 tonnes/year, recycling 85,000 tonnes/year, and total waste of 193,000 tonnes/year (city and county) (Siebel, 1993).</p>
Actual Capture/Diversion Rate:	<p>(Percentage or Tonnes-Tons/Annum)</p> <p>Current city-wide statistics: Blue Box recovered 96% of potential Blue Box materials for residential. Blue Box materials represent 21 % of total residential waste in the city. Therefore the Blue Box program diverted 8% of resident and IC&I total waste (Siebel, 1993).</p>

CASE STUDY:	City of Guelph - Pilot Wet/Dry
History/Progress:	(Approval Date, Start-up Date, Years of Operation) 1987: Curbside Blue Box 1989: Pilot Wet/Dry
Government Involvement:	(Voluntary/Incentives/Bylaws) MOEE - 100% financing of the pilot project.
Maximum Potential Participants:	(Population/Households/Employees/Enterprises) Blue Box: entire city Wet/Dry: long-term target is for entire county
Targeted Participation:	(Population/Households/Employees/Enterprises) Blue Box is currently targeted to the entire city. Wet/Dry is targeted to the entire city and the county of nine townships (with a population of over 160,000). 2-Stream Bin system is targeted to both residential and IC&I sectors.
Actual Participation:	(Population/Households/Employees/Enterprises) Blue Box: 86.5% (once in 8 weeks), 80.3% (twice or more in 8 weeks), 60.6% (four times or more in 8 weeks), Average of 5 times/8 weeks, Each Blue Box 79.6% full. (City of Guelph, 1991). Wet/Dry Pilot: 1989 - 565 residences, 1 year later 260 homes were added to test colour-coded bags. Two years later, 47 townhouses added to test multi-unit collection method (Siebel, 1993).

CASE STUDY:	City of Guelph - Pilot Wet/Dry
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <ul style="list-style-type: none"> · Traditional Blue Box, Education and Promotion focus on Reduction, Hazardous Waste Depot, Goods Exchange Days, Retail - Save A Bag, Blue Box Recycling Cart - Business and Multiple-Residential Buildings, White Goods, Scrap Aluminum, Backyard Composting, Leaf Composting, · Blue Box Materials include: magazines and glossy paper, newsprint, glass, rigid plastics, tin cans, aluminum cans and foil. Fine paper and corrugated cardboard at recycling depot. The Blue Boxes will be discontinued with the implementation of city-wide 2-stream wet/dry system. The new system will recycle these same items in addition to items not presently collected: fine paper, cardboard, boxboard, etc. · Materials banned from landfill - cardboard, wood, drywall, and tires. All handled by recycling firms. · Wet/Dry Pilot - Five Areas to evaluate combinations of 2-stream, 3-stream,¹ Bin and Bag (colour coded), Single Family Dwellings originally, 47 low-income townhouses were added in 1991. · Area A - 3-stream, Compostables/Recyclables/Garbage (120L cart, 240L cart, regular bags and pails). Began in 1989. · Area B - 2-stream, Wet/Dry, Wet - all organic waste, food contaminated packages, sweepings, etc. (120L cart) Dry - dry recyclables and non-recyclables (bag). This area was discontinued because of a high degree of contamination. The residents were divided into Areas A & C. · Area C - identical program to Area B except that 240L cart for dry instead of bag, 1989 · Area D - identical program to Area A except bags to replace carts, 1990 · Area E - identical program to Area C except bags replace carts, 1990 · Transportation: Hydraulic lift trucks for containers · Municipal Composting Facility for composting 10 tonnes/-week · Sorting tests for the wet/dry program were conducted in a part of the facility for Blue Box materials · Collection is once per week and will not increase with city-wide wet/dry (City of Guelph, 1991). <p>(Promotion/Education)</p>

CASE STUDY:	City of Guelph - Pilot Wet/Dry
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) City of Guelph, Population - 92,500 Blue Box: entire city, urban/suburban/rural Wet/Dry Pilot: Single Family Dwellings. (Low-Density Suburban) & Townhouses
Ownership/Financing:	(Municipal/Private/Not for Profit) Managed by the City of Guelph Engineering Department
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) Sector: Blue Box - All categories (Residential and IC&I) Wet/Dry: Pilot Residential, Currently undertaking a pilot project with McDonalds Restaurant.
Category of 3Rs:	(Reduce/Reuse/Recycle) All three Rs, but emphasis on recycling and composting Wet/Dry: Recycling and Composting

EVALUATION:

Replicability in GTA:

(Density/Building-

Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)

· Probably different waste composition in GTA, more newspaper, more IC&I, etc., however this would not affect viability, just change mix of operations.

· Larger number of high-rise and multi-family would make Blue Box and composting more difficult.

In Centre and South Hastings area, the % of the population, living in the same place for four years or more was: city 59.2%, apartment 51.9%, and rural 45.3%.

Turnover affects success; stable, single family communities best. In central GTA, large turnover of high-rises, etc., likely to affect participation rates. Welcome wagon approach could help. Northern/lower density parts of GTA such as Durham and parts of York and Peel are probably more similar to Hastings, although not quite as low a density.

· Greater multi-cultural component in GTA may mean greater range and variety of attitudes, more complex communications, etc. Hastings more homogeneous than parts of the GTA like Metro Toronto and Peel, but similar to Durham and to a lesser extent York.

EVALUATION:	
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land) Sorting Plant is located in an industrial park.</p> <ul style="list-style-type: none"> · Litter/Visual: Plant required rezoning because outdoor storage began to significantly exceed amount permitted. Some neighbours complained about. Was corrected by erecting security fences and visual barriers to catch litter, sending out employees each day to collect any that escapes, bunkers to contain/conceal certain materials, etc. (Von Mirbach, 1993). · Infrastructure from the original Blue Box program was sufficient with minor modifications for new material collection. <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <ul style="list-style-type: none"> · Employment/Sourcing: created about 35 permanent full and part time jobs. Large number of students hired to deliver 12,000 composters in summer, composters sourced to local manufacturers. · Convenience/Quality of Life: Obviously less convenient than before, but residents feel good about participation. Are proud to be doing their part, being leaders in Ontario recycling, reducing local landfill needs, etc.; i.e. source of community pride (Von Mirbach, 1993).

EVALUATION:	
<p>Reasons for Success/Lessons Learned:</p>	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <p>Successes: Excellent household response to Blue Box and backyard composting, even though procedures asked a lot of users.</p> <ul style="list-style-type: none"> · A more aggressive Blue Box recycling program can take advantage of the economies of scale and bring the average per-ton cost down. In all aspects of operation there are apparent economies of scale. Market development in co-operation with all industrial players is necessary to continue to open up new markets. Potential markets for new kinds of recyclables do not have standard specifications, and need significant amounts of feedstock for testing (Von Mirbach, 1993). <p>Lessons: Many initiatives require municipal intervention, such as landfill bans, user-pay, etc; Board can't implement on its own.</p> <ul style="list-style-type: none"> · In general, a curbside sort was found to be more efficient than an in-plant sort. Blue Box contaminants are left in the bin with a pre-printed note for instant response to residents (Argue, 1993). · Aggressive program to find markets for materials. Proposals for mandatory recycling and user pay did not evoke significant participation by 15 municipalities so far; Board needs to promote more actively. · Work with local schools and school boards to get message out. · Most households will accept a composter if you deliver/free of charge. · Hhld. Hazardous Waste component just starting up, main depot in Belleville ready in several weeks, satellites in several months, significant local demand/markets identified for most major hazardous waste streams, such as paint, etc. · This system was chosen over a wet/dry system, because it goes much further towards changing attitudes, promoting a "conserver society" and encouraging reduction and reuse (Von Mirbach, 1993).

CASE STUDY:	QUINTE, BLUE BOX PLUS!, BLUE BOX 2000
Cost:	<p>(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted) \$131/ton, net of revenue (1992), \$121/ton if IC&I tonnage included. \$23.31/hhld/yr, net of revenue (1992)</p>
Documentation and Attitude/Behavioral Surveys:	<p>(1. Contact Person, Address, Phone) Robert Argue and Alfred Von Mirbach Centre & South Hastings Recycling Board Marsh Hill Farm RR#4, Stirling, Ontario K0K 3E0 Tel: (613) 395-5392 Fax: (613) 395-0367</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys)</p> <p>-----, 1992, <u>Blue Box 2000: Interim Report</u>.</p> <p>Centre & South Hastings Waste Management Board, 1993, <u>Blue Box 2000: The First Year - Draft Report</u>. N.B. Detailed statistics for waste and Blue Box composition, available in Interim Report, but may not be applicable to GTA. Also detailed production figures, costs, markets and revenues.</p> <p>-----, 1992, <u>Blue Box Plus! Quinte Regional Recycling Demonstration Program - Final Report</u>. Informa Survey of Blue Box 2000 is expected to be final in April.</p> <p>Argue, Robert, 1993, "Blue Box 2000: An experiment in maximum recycling." <u>Resource Recycling</u> 12(1), 44-50.</p>

CASE STUDY:	QUINTE, BLUE BOX PLUS!, BLUE BOX 2000
Targeted Participation:	(Population/Households/Employees/Enterprises) Targeted (Distributed): almost 40,000 boxes: 21,000 urban curbside, 4,500 apartments, 9,100 rural curbside, 4,200 rural depot, 1,000 IC&I. Another 17,000 recyclables only in neighbouring municipalities as well as segment of IC&I.
Actual Participation:	(Population/Households/Employees/Enterprises) Blue Box Plus! About 84% hhlds put out Blue Box at least once in 4-6 weeks, 53% 1-3 weeks, 17% 1 week. Mixed set-outs about 4%, contaminated set-outs about 4%, rejected set-outs about 1% Blue Box 2000: Respondents said 75% recycle every week, 14% every other week, and 11% less often 74% own a composter, 91% said they will compost throughout the winter, 98% satisfaction rating
Maximum Potential Capture/Diversion:	(Tonnes-Tons/Annum) Blue Box: 746.4 lb/hhld/yr
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) Blue Box: As much as possible; greater than 85% Backyard Composting: distribute to 80%, reduce residential waste stream by 13% Overall Diversion: 55% Almost no IC&I or apartments. The diversions through waste reduction initiatives are difficult to quantify, and therefore hard to sell as fiscally responsible programs.
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) Blue Box: 462.5 lb/hhld/yr (of which ONP about 170 lb/hhld/yr), or 62% of available materials (1991 waste composition study) Backyard Composting: some rural and village municipalities have achieved 50%-80% participation Overall Diversion: 35% residential (1989 landfill base).

CASE STUDY:	QUINTE, BLUE BOX PLUS!, BLUE BOX 2000
Type/Method:	<p>(Source/Wet-Dry Mixed Stewardship Financial/Educational)</p> <ul style="list-style-type: none"> · Dry/Compost/Educational-Promotional. Components: Hhld. Blue Box/Backyard Composting/IC&I Blue Box/Waste Reduction Office/Hhld.Hazardous. Blue Box w/7 compartment truck, curbside sort, 20 materials streams marketed. Has 5 depots, 1 processing centre to bale recyclables, 10 trucks, 28 employees including 11 drivers, 1 shift sorting, 2 shifts baling. Extensive promotional activities, see Interim Report. Some new staff since then, see Evaluation section below. · HHW program consists of a permanent depot and 12 satellite sites, serviced by a "toxic taxi." 3 Apartment Pilot Projects for Blue Box Plus! were successful. Blue Box 2000 encompasses almost all apartments. System for each apartment, dependent on concerns and needs of landlord, tenants, and contractor. <p>(Promotion/Education)</p> <ul style="list-style-type: none"> · Strong Education and Promotion Program in particular with new initiatives. Telephone hotline answers questions and troubleshoots. · Strategy for the IC&I sector is primarily oriented to education and promotion.
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation)</p> <p>Master Plan Steering Committee set up 1985, Board established September 1989, Blue Box Launch - September 1990, Blue Box 2000 initiated November 1991</p>
Government Involvement:	<p>(Voluntary/Incentives/Bylaws)</p> <p>Draft By-law has been proposed to the 15 municipalities for mandatory recycling. Draft User-Pay system has been circulated to all municipalities - see Evaluation Section below.</p>
Maximum Potential Participants:	<p>(Population/Households/Employees/Enterprises)</p> <p>Potential: 15 municipalities, population base 95,000. A further 28 municipalities take material to the processing centre (additional 40,000).</p>

CASE STUDY:	QUINTE, BLUE BOX PLUS!, BLUE BOX 2000
DESCRIPTION:	
Location:	<p>(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural)</p> <p>1. Centre and South Hastings area, 13 municipalities and 2 adjacent cities.</p> <p>2. Setting: city/village/rural.</p>
Ownership/Financing:	<p>(Municipal/Private/Not for Profit)</p> <p>Centre & South Hastings Recycling Board (Municipal Board).</p> <p>(Quinte Regional Recycling Project).</p> <p>Earlier stage, Blue Box Plus demonstrations sponsored by MOEE and OMMRI. Blue Box 2000 sponsored by MOEE & Board.</p>
Sector/Purpose:	<p>(Residential/Institutional/Commercial/Industrial)</p> <ul style="list-style-type: none"> · Sector: All categories. However, the IC&I sector is not the direct mandate of the Board. · Purpose: To see if traditional Blue Box Program can be expanded to its maximum potential; to see if province's 25%/50% targets can be accomplished by extending conventional waste reduction methods. Promote the shift from a consumer to a conserver society. · The Blue Box 2000 program rejects 1-stream, 2-stream and 3-stream centralized programs, with the concern that they: are too expensive; rely too heavily on an unproven technology; will produce end-market materials that would be considered contaminated by today's market's standards; and do not cause the public to recognize and assume responsibility for their own waste (Centre and South Hastings Waste Management, 1993).
Category of 3Rs:	<p>(Reduce/Reuse/Recycle)</p> <p>Systems approach, functions in all 3Rs sectors, but major activity at present is source separation and backyard composting.</p>

Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)</p> <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <ul style="list-style-type: none">· Municipal Composting: sites in North York and Etobicoke have experienced significant odour problems. These area municipalities are considering closing sites and using Keele Valley (Avondale) composting facility.· Backyard Composting: minor problems with (in order of importance) - limited capacity; insecure doors/lids; insects, flies or bugs; scavenging animals; and odours.· Pilot Wet Collection: Results of survey not available yet.
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <p>Specifically designed for Metro.</p>

CASE STUDY:	METROPOLITAN TORONTO 3RS PROGRAM
<p>Documentation and Attitude/Behavioral Surveys:</p>	<p>(1. Contact Person, Address, Phone) Andy Pollock Metro Toronto Works Dept. Metro Hall, 55 John Street Toronto, Ontario M5V 3C6 Tel: (416) 392-4715</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) Pilot Wet Collection: Poole-Adamson Research Consultants Ltd. conducted survey. Report currently being prepared. Brochures and Newsletters for each pilot area. Backyard Composting: Metro Works Committee, 1992, <u>Home Composting Program Participants Survey</u>. Maclaren, Virginia W, 1990, <u>Metropolitan Toronto Home Composting Study</u>.</p>
EVALUATION:	
<p>Reasons for Success/Lessons Learned/Attitudes:</p>	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <ul style="list-style-type: none"> · Backyard Composting: Overall level of satisfaction high; participation rate year-round high; most would continue even if wet collection available; most consider purchasing subsidy important; most learned about program through media or friends; most would compost more if kitchen container provided; major concern is limited capacity of units. · Municipal Composting: finished product given away for free, demand exceeds supply. · Pilot Wet Collection: Results of survey not available yet.

CASE STUDY:	METROPOLITAN TORONTO 3RS PROGRAM	
Capture/Diversion Rate: Target and Actual	(Percentage or Tonnes-Tons/Annum)	
	1992 Diversion	1993
		Diversion
	(Actual, Tonnes)	(Projected)
	Blue Box	99,671 110,000
	Leaf Compost	33,964 35,000
	Yard Waste Compost	32,359 35,000
	Backyard Compost	25,198 (est) 28,000 (est)
	Lge Appl/Scrap Metal	9,413 10,000
	Metro Depts/Agencies	8,300 10,000
	Pilot Wet Collection	3,800 3,800
	Recycling Depots	2,340 1,750
	Christmas Trees	939 1,000
	Hhld Hazardous Waste	675 700
	Blue Dome Program	271 200
	Municipal Diversion	216,930 (20%) 235,450 (21%)
	Other (Soil, Shingles)	56,600 80,000
	Total Diversion	273,530 (24%) 315,350 (26%)
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted)	
	Blue Box (excluding City of Toronto): \$129.30/tonne/yr	

CASE STUDY:	METROPOLITAN TORONTO 3RS PROGRAM
Promotion/Education	<p>(Advertising/media/newsletter/workshops/door-to-door)</p> <ul style="list-style-type: none"> · GTA-wide advertising campaigns promoting waste reduction · Blue Box, yard waste and backyard composting programs: promotions using Toronto media, newsletters, booklets, brochures, fact sheets, posters & displays · Residential waste reduction guide (second edition) · Composting: demonstration sites, training of master composters, and workshops · IC&I: promotional videos, office paper recycling guides, educational kits, waste reduction and recycling plans, market directories · Educational programs · General information hotline on waste reduction · Ontario Recycling Information Service: information by phone and resource library · Anti-junk mail campaign
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation) (Varies by Area Municipality)</p> <ul style="list-style-type: none"> · Curbside Blue Box Start-up: Oct 1988 - June 1989, 4-5 years. · Backyard Composting: 4 years.
Government Involvement:	<p>(Voluntary/Incentives/Bylaws)</p> <ul style="list-style-type: none"> · Landfill Ban, Metro Landfills: OCC, office paper, tires, drywall, scrap metal, reusable off-specification and surplus goods (books, unsold clothes), clean fill, concrete and rubble, wood waste. · Tipping fees increased four fold from 1987 to 1989. 1991 Metro tipping fees \$152.25/tonne. If loads contain any recyclables, alternate rate is \$300.00/tonne.
Potential Participants:	<p>(Population/Households/Employees/Enterprises) 839,000 hhlds (454,000 single-family, 385,000 multi-family)</p>
Targeted Participation:	<p>(Population/Households/Employees/Enterprises) As above</p>
Actual Participation:	<p>(Population/Households/Employees/Enterprises) Blue Box: 704,000 hhlds (454,000 single-family, 250,000 multi-family)</p>
Potential Capture/Diversion:	<p>(Tonnes-Tons/Annum)</p>

CASE STUDY:	METROPOLITAN TORONTO 3RS PROGRAM
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <p>Source Separation (3 stream - blue box/organic yard waste/regular garbage), Pilot Wet, Educational. Range of 3Rs initiatives includes (may vary by municipality):</p> <ul style="list-style-type: none"> · Blue Box Program. Weekly collection except Toronto, where alternate weeks for paper/container material. 82 compartmentalized recycling vehicles (excluding City of Toronto), one operator each, two in City of Toronto. 1 Metro owned MRF at Commissioners St. · Leaf and Yard Waste Composting. 6 municipal sites, finished compost shipped to transfer stations for free distribution to public (part used by area municipalities). · Backyard Composting. 105,000 backyard composters distributed. · Pilot Wet Collection. 15,000 hhlds in four pilot areas: North York (1), Etobicoke (2), Toronto (1). All hhlds single-family. Each pilot area tested different container system. 1 centralized composting plant at North York Dufferin Transfer Station: Fairfield in-vessel primary digester and secondary composting bunkers/cells. · Reuse Centres. In partnership w/non-profit organizations and private sector. Goodwill Industries (clothing, small items), 10 staffed trailers, 20 stores, and other arrangements w/municipal landfills/BB/Laidlaw; ReUze Building Centre (waste materials/products from construction and demolition), for profit, 1 location; Second Harvest (surplus perishable food). · Household Hazardous Waste. 10 HHW depots, 2 Toxic Taxis. Depots open 2 days/week for drop-off, disposal by Laidlaw. · Procurement Program. Founding member of G.I.P.P.-E.R., see case study) · Landfill Bans. (see Government Involvement section) · Public Promotion and Education. (see section below) · Large Appliances/Scrap Metal. · Department/Agency Source Separation. · Recycling Depots. · Christmas Trees. · Blue Dome Program.

CASE STUDY:	METROPOLITAN TORONTO 3RS PROGRAM
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) 1. Municipality of Metropolitan Toronto. 2. Setting: Urban High Density/Suburban
Ownership/Financing:	(Municipal/Private/Not for Profit) Predominantly Municipal Advertising campaign, promotional and educational programs financed 50% by MOE; composters 66.6% by MOE, balance by Metro.
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) All
Category of 3Rs:	(Reduce/Reuse/Recycle) All

recognized that greater effort should be put into market development.

(2) *Pilot Programs*

Pilot programs in the IC&I sector tend to serve as important educational tools; they identify day-to-day problems in a particular sector (e.g., construction) and enable a search for practical solutions.

(3) *Regulation*

While regulation is unpopular with the commercial and industrial sectors, they do comply with the regulations. Conditions in which regulations may be more readily accepted include: sufficient compliance periods, adequate consultation, equity in the legislation, definite potential for environmental improvement, and low financial burden. From the GM case study, there was greater concern for the speed with which the regulations were implemented and with the lack of consultation, than with the regulation itself.

(4) *Economies of Scale*

Most businesses will have a greater likelihood of compliance with regulations, if they can achieve economies of scale. The feasibility of source separation and extensive recycling programs in small establishments is questionable due to the lack of infrastructure for such systems. It is expected that many small establishments that have been designated in the MOEE 3Rs proposed regulations (MOEE, 1993) will have this problem.

(5) *Corporate Attitude and Strategy*

Both the Loblaws and GM case studies reveal that successful waste management programs are highly dependent on a commitment from senior corporate leaders. Such a commitment is necessary to ensure the allocation of sufficient resources and the establishment of formal corporate environmental ethic.

9.0 Significant Issues and Applicability to the GTA

Municipal

(1) Promotion/Education

Effective promotion/education programs are important to municipal 3Rs programs.

(2) Multiple Family Dwellings

All municipal case studies reveal that attaining higher participation in multiple-resident buildings is more difficult due to turnover, lack of space for recycling bins and storage, management of the waste, etc. Quinte seems to have developed the most promising solution. A variety of collection systems have been developed and the apartment owner/manager can choose the most appropriate system for the building. A version of this system may be applicable in the GTA.

(3) Ethnic Diversity

The case studies reveal that a recycling program will be more difficult to implement in a more ethnically diverse population for two reasons. First, the diversity of languages represents both a formal and informal communication barrier. Second, some ethnic groups may be recent immigrants or may not come from a background where recycling is a commonly understood practice. While these problems represent implementation barriers, they do not preclude these groups from participating. Targeting non-participating ethnic populations has been a key focus of the Seattle program.

(4) Composting

Backyard composting has been accepted in low-density residential areas with significant penetration. Significant odour problems have occurred at some composting facilities.

IC&I

(1) Markets

There is almost unanimity of opinion within the IC&I that viable markets for recyclable materials need to be present to facilitate recycling programs. It is widely

7.6 Sunnybrook Hospital

- Selected because hospitals are a significant waste generator and Sunnybrook has been quite proactive in waste management.
- Since 1991 the environmental services program has been contracted out to a waste management company.
- Recycling planning is done in co-ordination with eleven other regional hospitals in Ontario.
- Currently achieving 33%-36% diversion, with a 50% target for the end of 1993.
- Received overwhelming staff support.
- Key concern is the lack of storage space for recyclables.
- 95% of the bio-medical waste is treated in a sterilizer (that eliminates any hazards) and is subsequently landfilled. Sharps, chemotherapy wastes, and pathological wastes are sent to the incinerator.
- Applicable to other hospitals with the same combination of enthusiasm and a good management strategy.

8.0 Government Regulatory Case Studies: Key Findings

8.1 Green Dot - Duales System Deutschland (DSD)

- Selected because it is a national scheme designed to deal with packaging waste.
- DSD is an exemption scheme covering packaging in all sectors. A federal ordinance requires that consumers must return packaging to the point of sale, which must then be collected by manufacturers and recycled. If packaging bears a Green Dot, consumers are exempted from point of sale returns and can dispose of it much more conveniently in local depots or curbside yellow bins/bags.
- Ownership, administration, capital and operating costs financed by private industry and recovered in the price of the product.
- Builds true costs of waste management into price of product.
- Has led to a dramatic reduction of materials difficult to recover and recycle.
- DSD currently facing legal challenges, both within Germany and from EEC partners claiming protectionism and violations of anti-trust laws.
- German government believes that 3Rs are inevitable. By absorbing the cost now, it hopes to gain an international competitive advantage through: export of leading edge waste and packaging technology; preferential sales to purchasers with green specifications; and lower manufacturing and environmental costs.

complex materials.

- Regulations, such as landfill bans that are imposed over a very short time-frame, have created problems for the private sector from financial, operational and environmental perspectives. A longer time-frame for implementation allows for waste management to be considered as part of overall corporate strategy. This is significant as related manufacturing processes become further linked across international boundaries.

- Waste management and "greening" of companies will be most effective when upper management is aware of and involves itself with these issues, and they become part of the overall corporate philosophy. This is most likely to happen where industry is regularly consulted by government, where there is a uniformity in regulation at different levels of government, and where the regulation will clearly benefit the environment.

- While any waste management strategy needs to be designed to the unique needs of each corporation and its material waste, there are many identifiable aspects of waste management at GM that would represent the interests of, and be applicable to, other companies in the GTA.

7.5 Loblaws Grocers Ltd.

- Selected because the retail grocery sector is a major waste generator and Loblaws has a successful program in managing this waste stream.

- In 1990, Loblaws implemented an extensive waste management and environmental program. Commitment to the environment, potential economic savings, and regulations were significant motivations.

- While the diversion rate varies from store to store; overall Loblaws recycles 80% - 85% of its waste.

- Costs vary from store to store, but overall there has been a positive return on investment.

- Six factors have made the waste management program successful: (1) Proper attitude and dedication by employees, (2) Dedication by senior management to being a good corporate citizen, (3) Proper education and training, (4) Genuine ethical concern for the environment, (5) Economic savings, and (6) Positive relationship between labour and management.

- Very applicable to other grocery chains. However, all stores will need to develop programs to their unique circumstances. Smaller and older stores will have a more difficult time due to a lack of space for materials and equipment.

- While Loblaws will abide by all established regulations, it would prefer guidelines and targets for industry waste management.

- Significant concern over possible returnable bottle legislation.

7.3 Management Board Secretariat (MBS): Green Workplace

- Selected because of its comprehensive, unusually wide range of initiatives and its significant achievements in waste management for government buildings.
- Primary purpose of Green Workplace is to integrate the 3Rs of waste management, energy and water conservation, environmentally-sensitive purchasing and building specifications, and air quality and hazardous materials management into government's day-to-day operations.
- Range of Green Workplace initiatives includes: reduction, recycling and reuse, composting, energy management, water conservation, procurement, resource centres, green labelling, 3Rs pilot projects, exhibits and high school programs.
- Office diversion has been extremely successful. MBS achieved a 50% diversion rate by 1992, well ahead of target, and is now testing a 75% diversion rate (overall, some buildings higher).
- The Green Workplace Program has been successful in achieving its goal of establishing a multi-faceted program with the widest possible range of 3Rs coverage.
- The Canadian/Ontario public/private partnership approach, which is almost entirely voluntary, is an interesting contrast to the German ordinance-backed approach, and the U.S. Executive Order approach of mandatory recycled content for federally funded projects.
- MBS is a major force in the market, and must be sensitive to the fact that in a difficult economic climate, reduction is perceived as a threat to jobs in packaging and related industries. To minimize this perceived impact, recycling and reuse are being promoted in combination with reduction.

7.4 General Motors: Oshawa Autoplex

- Selected because the manufacturing sector is a major waste generator and has a fairly innovative and successful program.
- Waste management activities have resulted in a 40-42% reduction of waste to landfill. An additional, one-third of the waste is recovered as energy for steam requirements. The remaining third of waste is landfilled.
- Had been involved in some waste management activities prior to 1988. A comprehensive waste management program began in late 1988 as a result of landfill bans on some materials.
- By-laws banning some materials from landfills forced greater waste diversion, but at a significant financial cost and often markets were not ready for the quantity of materials diverted.
- A certain percentage of waste (5%-15%) will be extremely difficult to recycle for reasons such as lack of feasible recycling technology, extraordinary cost, or

7.0 IC&I Case Studies: Key Findings

7.1 G.I.P.P.E.R. (Governments Incorporating Procurement Policies to Eliminate Refuse), City of Toronto Coordinator.

- Selected because it is a broadly-based procurement program.
- Facilitates co-operative and joint purchasing among different levels of government, so as to provide markets necessary to promote and sustain reduction, reuse, recycling, and recovery of materials initiatives.
- There is a strong concern to give weight to 3Rs content without affecting price competitiveness and basic product performance.
- Generally beyond the resources of G.I.P.P.E.R. to undertake a certification of environmentally friendly products.
- Fully applicable to the GTA.

7.2 Greater Toronto Home Builders Association (GTHBA): Molehill & GTHBA/ORTECH: Build Green Program

- Selected because the construction sector is considered a major waste generator and this is an innovative program.
- GTHBA is a trade association in Greater Toronto with over 885 member companies. The Build Green Program is a predominantly Ontario partnership involving the private sector, a trade association and government agencies.
- Objective of the program is to promote and increase consumer, builder, retailer, and manufacturer awareness of the potential for purchasing and using building materials which have recycled content.
- Significant public interest in the purchasing of good used building materials and products.
- Reusable items only have potential when directly connected with potential end markets.
- Bulk recycling bins at construction sites act as magnets for residential waste.
- Rising environmental consciousness, rapidly increasing tipping fees and "zero tolerance" at landfill sites are changing attitudes to construction waste management.
- Source separation of waste is most difficult when a number of sub-contractors are involved.
- Waste haulers are concerned with unclear or inconsistently enforced landfill regulations/bans, scale of operations, location of source separation, and availability of markets.

- The implementation of a city-wide 2-stream bin system has received a Certificate of Approval for the facilities.
- Some minor inconveniences noted with bins.
- No significant odour problems identified, however the pilot project was very small and the composting took place at the City's landfill.
- While Guelph did not experience significant contamination problems, the success of a wet/dry program depends on limited contamination. Three factors that are keys to Guelph success include: a strong rural and environmental ethic in the city's population; large proportion of single-family dwellings; and, homogenous population.

6.4 City of Seattle - Comprehensive

- Selected because it is considered to be on the leading edge of large municipal solid waste management programs in North America.
- Owned and managed as a utility for residential and commercial waste management. Residential collection is contracted out to private haulers. IC&I serviced by private haulers.
- Has attained its 1991 target of 40% waste diversion. Targeting 60% by 1998.
- Operates like a utility; charges fees for garbage collection, but recyclables collection is at no or very low cost.
- Low-income residents can qualify for preferential rates.
- Seniors and others can opt for services like backyard pick-up (e.g., Forest Hill in Toronto).
- Enforcement for illegal dumping or burning.
- Recycling is less successful in multiple resident dwellings.
- Marketing, public relations, and information targeted to different populations (varying ethnic groups).
- Stable markets for recyclables is important.
- Seattle authorities believe their program is successful because of a user-pay system, strong environmental ethic, and large proportion of single-family dwellings.
- Somewhat applicable to GTA because Seattle is a large city and has a diverse ethnic make-up. However, Seattle is different because it has no rural component, has a large proportion of single-family dwellings, and has a long history of a user-pay system for garbage.

6.0 Municipal Case Studies: Key Findings

6.1 Metropolitan Toronto 3Rs Program

- Selected because of its comprehensiveness.
- Has met 1992 provincial recycling target of 25%.
- Participation is more difficult in multiple-family dwellings.
- Some municipal composting sites have experienced significant odour problems.
- Backyard Composting: Overall level of satisfaction is high albeit with a few minor nuisance problems (e.g., insecure lids); most would continue even if wet collection available; most consider purchasing subsidy important; most learned about program through media or friends; most would compost more if kitchen container provided; major concern is limited capacity of units.
- Provide promotion/education, and market directory for each IC&I sector.

6.2 Quinte Blue Box Plus! and Blue Box 2000

- Selected because of a high participation rate which tests the maximum potential of a traditional Blue Box program.
- Very high participation and capture rates in household recycling and in use of backyard composters.
- Recently concentrating on multiple-family dwellings; apartment owners/managers are offered a range of systems to choose from.
- Market development in co-operation with industrial players is necessary to continually open up new markets.
- The more materials that went through the MRF, the cheaper the costs became (economies of scale).
- Education, promotion and instant feedback to residents are critical factors.
- Source of community pride.
- Three factors that make recycling program easier to implement in Quinte than in the GTA include: larger proportion of single-family dwellings, less turnover, higher degree of homogeneity.

6.3 City of Guelph - Pilot Wet/Dry

- City evaluated a variety of 2-stream and 3-stream bin and bag combinations. Overall, the pilot project achieved 62% diversion of residential waste stream. 2-stream system was selected primarily because it achieved higher diversion; however, it also has greater flexibility for new market materials, is less expensive to collect, and will be easier to implement in multiple-family dwellings and businesses.

attitudes leading to high/inadequate levels of participation or diversion.

Potential Social Impacts. Physical or "nuisance" factors: noise; odour; litter; visual; traffic; pollution of air, water, and land. Socio-cultural factors: potential impacts on health and safety; creation or loss of employment; local or outside sourcing/markets of system components, construction and employment, and recycled material output.

Applicability to the GTA. Density, lot size and housing type (single family, high rise, etc.); turn-over of neighbourhood/tenure (own or rent); volume and composition of waste generated; availability of markets; and, attitudes of residents.

5.0 Case Studies

5.1 Municipal Case Studies

- (1) Metropolitan Toronto 3Rs Program
- (2) Quinte Blue Box Plus! and Blue Box 2000
- (3) City of Guelph - Wet/Dry Pilot
- (4) City of Seattle - Comprehensive

5.2 IC&I Case Studies

- (1) G.I.P.P.E.R. (Governments Incorporating Procurement Policies to Eliminate Refuse), City of Toronto Coordinator
- (2) Greater Toronto Home Builders Association (GTHBA): Molehill & GTHBA/ORTECH: Build Green Program
- (3) Management Board Secretariat (MBS): Green Workplace
- (4) General Motors: Oshawa Autoplex
- (5) Loblaws Grocers Ltd.
- (6) Sunnybrook Hospital

5.3 Government Regulatory Case Studies

- (1) Green Dot - Duales System Deutschland (DSD)

section focused on three issues, attitudes, impacts and applicability to the GTA. The detailed contents of these sections follow:

4.1 Description

- Location. City, region and setting (urban, low density, rural);
- Ownership/Financing. Municipal, private, not-for-profit.
- Sector/Purpose. Residential, institutional, commercial, industrial.
- Category of 3Rs: Reduce, reuse, recycle.
- Type/Method: Source separation, wet/dry, mixed (central separation), stewardship, financial, educational.
- Promotion/Education: Advertising media, information kits, instructional guides, open houses, door-to-door, lectures, videos, newsletters, hotlines, etc.
- History/Progress: Approval date, start-up, years of operation.
- Government Involvement: Voluntary, incentives, bylaws.
- Potential, Targeted and Actual Participation: Population, households, employees, enterprises.
- Potential, Targeted and Actual Diversion/Capture: Percentage or tonnes/annum.
- Cost: \$/population, household, employee, enterprise or \$/tonne.
- Documentation and Attitudinal/Behavioral Surveys: Name, position, address, telephone and fax numbers of contact; available reports, market analyses, attitudinal/behavioral and participation surveys.

4.2 Evaluation

- Reasons for Success, Lessons Learned, and Attitudes and Behaviour. Degree of complexity, time or cost for users or operators; availability of support (procedures, malfunction, or supplies); excessive quantities for system/equipment capacity, or inadequate quantities to justify cost/effort;

- Effectiveness/ineffectiveness at diversion (high/low participation and/or diversion);
- Effectiveness/ineffectiveness at attitude/behavioral change (evidence of success or failure where this was previously considered to be unlikely);
- Cost-effectiveness (very costly methods would not be suitable for replication or continuation);
- Replicability in the GTA (compatible in terms of socio-cultural characteristics, urban/rural mix, etc.);
- Availability of information (availability of statistics, documentation and surveys, willingness to provide information); this criterion favours systems/components that have been in operation long enough to have a useable track record.

3.0 Case Study Methodology

The methodology for carrying out the case studies was as follows. First, an initial contact was made to determine willingness to participate and to obtain any available documentation and surveys. These were usually adequate enough to fill in much of the description and sometimes part of the evaluation. Then, follow-up contact(s) were made, either by telephone or in person, to fill in data gaps and complete the evaluation section. The descriptive sections can essentially be considered as factual in nature; while the evaluation sections consisted of the opinions of both the correspondents and the researcher. The source of these opinions is generally documented either in the literature assembled for the case study or the researchers interview notes. The methodology was occasionally modified to suit circumstances. For example, a few case studies were assembled exclusively from the available documentation or by interviewing a team member who was knowledgeable in the component or system, but not associated with it. Where an interview had taken place, the correspondent was offered the opportunity to review and comment on the draft before it was finalized.

4.0 Case Study Data Type

Each case study was divided into two sections: a descriptive section of the 3Rs component or system under examination, covering such matters as ownership, method, equipment, performance, documentation and surveys; and, an evaluation

SCHEDULE E:

CASE STUDY RESEARCH SUMMARY

1.0 Purpose of Case Studies

The purpose is to identify successful alternative 3Rs options and key 3Rs implementation factors. From the social perspective this involves:

- analyzing and identifying socio-cultural reasons for successes and lessons learned;
- identifying potential social effects of 3Rs operations;
- identifying operating procedures/practices which could cause social effects; and
- identifying attitudes and behaviour to 3Rs components and systems.

2.0 Case Study Selection Criteria

The case studies were selected based on two inputs: a set of criteria; and the "opinion of experts". The experts consulted were MOEE and RIS staff members who had extensive experience with 3Rs case studies. Some of the criteria were not applicable to all cases, and some were mutually exclusive, requiring that trade-offs be made. The criteria, which follow, were generally considered to be of equal importance:

- Coverage of probable 3Rs Options (based upon RIS inputs and draft text. This included both municipality-wide systems and individual components);
- Coverage of major waste generation sectors (for IC&I, this was based upon GVRD statistics of IC&I waste composition provided by RIS (CH 2M Hill, 1993);
- Coverage of a variety of management types (should cover a range of management options such as municipal, private and not-for-profit);
- Level of involvement (large scale participation of target population/enterprises preferred);

SCHEDULE E

Case Study Research Summary

8. Is the quality of material coming to the site consistent month-to-month or does it vary?

9. How many people are employed in the operation of the facility?

3. What potential biophysical and social environmental effects were predicted and how were they to be mitigated? Does the facility include any design features intended to reduce potential effects? Have you ever had to rely on these features?

4. Have there been any impacts on people, businesses, land, air, ground water from the operation of the facility?

- . Spills
- . Emission/Air Quality
- . Odours
- . Noise
- . Dust
- . Traffic
- . Rodents/Birds
- . Other (Specify)_____

5. Have there been any complaints about the operation of the facility?

- . Noise
- . Odour
- . **Rodents/Birds**
- . **Spills**
- . Traffic
- . Dust
- . Trespassing (esp. children)
- . Land Value Concerns
- . Other (Specify)

6. How have these identified effects and complaints been resolved?

- . Installation of new design features
- . Monitoring
- . Operational Change
- . Other (Specify)

7. Do you think that changes in the composition of material managed at your facility would result in any other effects on the biophysical or social environments? If so, what types of effects?

5.0 Facility Operator Interview Survey

Facility Name:

Location:

Contact:

Telephone Number:

Fax Number:

Date:

1. Facility Ownership? Public ____ Private ____

2. Were any studies undertaken to site your facility and to predict possible biophysical and social environment effects associated with the facility?

Margles, HSA. April 14, 1993.

Cuthill, Jim and Taylor, Paul 1993. Harmony Planning Consultants and Compost Management Inc. for the City of Mississauga Pilot Scale Compost Facility. Personal Communication with Elizabeth Margles, HSA. April 12, 1993.

Corvinelli, Caesar 1993. Metro Toronto Avondale Leaf Composting Area. Personal Communication with Larry Fedec, MMD. April 14, 1993.

Sawyer, Bob 1993(b). Metro Toronto Dufferin Compost Facility. Personal Communication with Jonathan Kauffman, HSA. April 14, 1993.

McKenzie, Ken 1993. City of Sarnia Compost Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

Reid, Jeep 1993. Reidel Corp. for the City of Portland, Oregon Mixed Waste Processing Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

Smith, John 1993. Region of Halton Wet/Dry Compost Pilot Project. Personal Communication with Larry Fedec, MMD. April 16, 1993.

Jacobs, Mark 1993. Hensall Composting Facility. Personal Communication with Larry Fedec, MMD. April 16, 1993.

- . Four facilities employ sixty or fewer staff.²⁸
- . At least some staff at three facilities are unionized.²⁹
- . Twelve facilities employ no unionized staff.³⁰

Sarnia's compost facility employs one full-time and three part-time staff.(McKenzie, Ken 1993. City of Sarnia Compost Facility. Personal Communication with Larry Fedec, MMD. april 15, 1993.)

Halton employs two full-time staff for their wet/dry composting facility.(Smith, John 1993. Halton Region Wet/Dry Compost Pilot Project. Personal Communication with Larry Fedec, MMD. april 16, 1993.)

The Hensall Composting Facility employs two full-time staff.(Jacobs, Mark 1993. Hensall Composting Facility. Personal Communication with Larry Fedec, MMD. April 16, 1993.)

²⁸ Waste Management Inc. employs sixty full-time staff. (Osbourne, Steve 1993. Waste Management Inc. Dry Recyclable Facility. Personal Communication with Elizabeth Margles, HSA. April 14, 1993).

The Reidel Corporation employs thirty two full-time staff for the City of Portland. (Reid, Jeep 1993. The City of Portland Mixed Waste Processing Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993).

Durham Region employs fifty full-time staff for their recycling facility. (Watson, Peter 1993. Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD. April 6, 1993).

Metro employs thirty full-time staff for the Commissioners St. MRF. (Sawyer, Bob 1993(a). Metro Commissioners St. MRF. Personal Communication with Jonathan Kauffman, HSA. April 13, 1993).

²⁹ Some of Scarborough's composting facility staff is unionized. (Dale, Debra 1993. City of Scarborough Composting Facility. Personal Communication with Elizabeth Margles, HSA. April 8, 1993).

The Wright County Compost Facility employs twenty-one unionized staff. (Davis, Chuck 1993. Wright County Compost Facility. Personal Communication with Elizabeth Margles, HSA. April 6, 1993).

Metro's Dufferin Compost Facility employs four unionized staff. (Sawyer, Bob 1993(b). Metro Toronto Dufferin Compost Facility. Personal Communication with Jonathan Kauffman, HSA. April 14, 1993).

³⁰ Lefebvre, Phil 1993. Region of Ottawa-Carleton Household Hazardous Waste Depot. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Sawyer, Bob 1993(a). Metro Commissioners St. MRF. Personal Communication with Jonathan Kauffman, HSA. April 13, 1993.

Watson, Peter 1993. Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Rhodes, John 1993. Township of Pittsburgh, Ontario Leaf and Yard Waste Compost Facility. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Scott, Jim 1993. Scott's Composting Farm. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.

Osbourne, Steve 1993. Waste Management Inc. Dry Recyclable Facility. Personal Communication with Elizabeth

Three facilities were sited on municipally-owned land.²⁶

4.4 Facility Employment

When asked:

How many people are employed in the operation of the facility?

Are the employees full-time, part-time, unionized?

Eleven facilities employ twenty-five or fewer staff.²⁷

²⁶ Watson, Peter 1993. Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD. April 6, 1993.

McKenzie, Ken 1993. City of Sarnia Compost Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

Corvinelli, Caesar 1993. Metro Toronto Avondale Leaf Composting Area. Personal Communication with Larry Fedec, MMD. April 14, 1993.

²⁷ The Region of Ottawa-Carleton Household Hazardous Waste Depot employs ten people in the winter, but up to three hundred in the summer. (Lefebvre, Phil 1993. Region of Ottawa-Carleton Household Hazardous Waste Depot. Personal Communication with Larry Fedec, MMD. April 6, 1993).

The Township of Pittsburgh, Ontario Leaf and Yard Waste Compost Facility employs four full-time staff. Occasionally 100 inmates from the Joyceville Penitentiary debag leaves. (Rhodes, John 1993. Township of Pittsburgh, Ontario Leaf and Yard Waste Compost Facility. Personal Communication with Larry Fedec, MMD. April 6, 1993).

The City of Scarborough employs eight half-time facility staff, in that they have other responsibilities in the municipality. There are one hundred and fifty trucking staff which are unionized. (Dale, Debra 1993. City of Scarborough Composting Facility. Personal Communication with Elizabeth Margles, HSA. April 8, 1993.)

Wright County Compost Facility employs seventeen full-time staff and three part-time staff. (Davis, Chuck 1993. Wright County Compost Facility. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.)

Scott's Composting Farm employs five full-time staff. (Scott, Jim 1993. Scott's Composting Farm. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.)

The City of Mississauga's pilot project employs two full-time staff. (Cuthill, Jim and Taylor, Paul 1993. Harmony Planning Consultants and Compost Management Inc.. Personal Communication with Elizabeth Margles, HSA. April 12, 1993.)

The Avondale facility employs twelve full-time staff. (Corvinelli, Caesar 1993. Metro Toronto Avondale Leaf Composting Area. Personal Communication with Larry Fedec, MMD. April 14, 1993)

Metro's Dufferin facility employs five full-time and one part-time staff. (Sawyer, Bob 1993(a). Metro Toronto Dufferin Compost Facility. Personal Communication with Jonathan Kauffman, HSA. April 14, 1993.)

4.3 Facilities Located at Existing Waste Management Sites or on Municipally-Owned Land

Of the fifteen facilities surveyed:

- Four facilities were sited on lands with existing landfills or waste transfer stations.²⁵

Watson, Peter 1993. Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Rhodes, John 1993. Township of Pittsburgh, Ontario Leaf and Yard Waste composting Facility. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Davis, Chuck 1993. Wright County Compost Facility. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.

Scott, Jim 1993. Scott's Composting Farm. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.

Cuthill, Jim and Taylor, Paul 1993. Harmony Planning consultants and Compost Management Inc. for the City of Mississauga Pilot Scale Composting Facility. Personal Communication with Elizabeth Margles, HSA. April 12, 1993.

Corvinelli, Caesar 1993. Metro Toronto Avondale Leaf Composting Area. Personal Communication with Larry Fedec, MMD. April 14, 1993.

Sawyer, Bob 1993(b). Metro Toronto Dufferin Compost Facility. Personal Communication with Jonathan Kauffman, HSA. April 14, 1993.

McKenzie, Ken 1993. City of Sarnia Compost Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

Reid, Jeep 1993. Reidel Corp. for the City of Portland, Oregon Mixed Waste processing Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

Smith, John 1993. Region of Halton Wet/Dry Compost Pilot Project. Personal Communication with Larry Fedec, MMD. April 16, 1993.

Jacobs, Mark 1993. Hensall Composting Facility. Personal Communication with Larry Fedec, MMD. April 16, 1993.

²⁵ Sawyer, Bob 1993(a). Commissioners St. MRF. Personal Communication with Jonathan Kauffman, HSA. April 13, 1993.

Rhodes, John 1993. Township of Pittsburgh, Ontario Leaf and Yard Waste Composting Facility. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Smith, John 1993. Region of Halton Wet/Dry Compost Pilot. Personal Communication with Larry Fedec, MMD. April 16, 1993.

Jacobs, Mark 1993. Hensall Composting Facility. Personal Communication with Larry Fedec, MMD. April 16, 1993.

- One facility undertook an extensive environmental assessment.²¹
- Three facilities followed the Ministry of Environment's guidelines for a Certificate of Approval.²²

4.2 Predicted/Anticipated Effects and Mitigation Measures

When asked:

What potential biophysical and social environment effects were predicted and how were they to be mitigated?

Does the facility include any design features intended to reduce potential effects?

- Two facilities did not predict any effects and neither included design features to reduce potential effects.²³
- Thirteen facilities predicted at least one effect and included design features to reduce potential effects.²⁴

²¹ Davis, Chuck 1993. Wright county Mixed Waste Composting Facility. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.

²² Dale, Debra 1993. City of Scarborough Leaf and Yard Waste Composting Facility. Personal Communication with Elizabeth Margles, HSA. April 8, 1993.

Osbourne, Steve 1993. Waste Management Inc. Dry Recyclable Facility. Personal Communication with Elizabeth Margles, HSA. April 8, 1993.

Cuthill, Jim and Taylor, Paul 1993. Harmony Planning Consultants and Compost Management Inc. Personal Communication with Elizabeth Margles, HSA. April 12, 1993.

²³ Dale, Debra 1993. City of Scarborough Composting Facility. Personal Communication with Elizabeth Margles, HSA. April 8, 1993.

Osbourne, Steve 1993. Waste Management Inc. Dry Recyclable Facility. Personal Communication with Elizabeth Margles, HSA. April 8, 1993.

²⁴ Lefebvre, Phil 1993. Region of Ottawa-Carleton Household Hazardous Waste Depot. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Sawyer, Bob 1993(a). Metro Toronto Commissioners St. MRF. Personal Communication with Jonathan Kauffman, HSA. April 13, 1993.

4.0 Summary of General Findings

4.1 Siting Studies/Assessments

When asked:

Were any studies undertaken to site your facility and to predict possible biophysical and social environment effects associated with the facility?

- . Eight facilities did not undertake any siting studies.¹⁹
- . Three facilities undertook limited studies to assess noise, traffic and/or run-off.²⁰

¹⁹ Watson, Peter 1993. The Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Rhodes, John 1993. Township of Pittsburgh, Ontario Leaf and Yard Waste Composting Facility. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Scott, Jim 1993. Scott's Composting Farm (IC&I). Personal Communication with Elizabeth Margles, HSA. April 6, 1993.

Corvinelli, Caesar 1993. Metro Toronto Avondale Leaf Composting Area. Personal Communication with Larry Fedec, MMD. April 14, 1993.

Sawyer, Bob 1993(b). Metro Toronto Dufferin Compost Facility. Personal Communication with Jonathan Kauffman, HSA. April 14, 1993.

McKenzie, Ken 1993. City of Sarnia Leaf Compost Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

Smith, John 1993. Region of Halton Wet/Dry Compost Pilot. Personal Communication with Larry Fedec, MMD. April 16, 1993.

Jacobs, Mark 1993. Hensall Composting Facility. Personal Communication with Larry Fedec, MMD. April 16, 1993.

²⁰ Lefebvre, Phil 1993. Region of Ottawa-Carleton Household Hazardous Waste Depot. Personal Communication with Larry Fedec, MMD. April 6, 1993.

Sawyer, Bob 1993(a). Metro Commissioner's St. MRF. Personal Communication with Jonathan Kauffman, HSA. April 13, 1993.

Reid, Jeep 1993. Reidel Corp. for the City of Portland, Oregon Mixed Waste Processing Facility. Personal Communication with Larry Fedec, MMD. April 15, 1993.

There were a few odour complaints registered at one of the two facilities surveyed.¹⁴

3.6.2 Litter

Both of the MRF facilities interviewed noted a litter effect. Both facilities have mitigated the effect.¹⁵

3.7 Wet/Dry Processing Facility

The facility surveyed was a pilot project that was too small for appropriate evaluation.¹⁶

3.8 IC&I Processing Facility

To date, the facility surveyed has not registered any complaints or effects related to its operations.¹⁷

3.9 Household Hazardous Waste Permanent Depot

To date, the facility surveyed has not registered any complaints or effects related to its operations.¹⁸

¹⁴ The Region of Durham Recycling Centre. (Watson, Peter, 1993. Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD, April 6, 1993.)

¹⁵ There were complaints about the litter scattered along the access roads to the Region of Durham Facility. This has been mitigated by directing staff from the facility to pick up the litter surrounding the site. (Watson, Peter 1993. Region of Durham Recycling Centre. Personal Communication with Larry Fedec, MMD April 6, 1993)

The staff at the Metropolitan Toronto MRF have been proactive in controlling a litter effect. Staff habitually collects litter surrounding the facility, no complaints have been registered. (Sawyer, Bob 1993. Metro Toronto MRF. Personal Communication with Jonathan Kauffman, HSA April 13, 1993)

¹⁶ City of Guelph Wet/Dry Pilot Project. (Laird, Janet 1993. City of Guelph Wet/Dry Pilot Project. Personal Communication with Phil Shantz April 1993)

¹⁷ Waste Management Inc. Dry Recyclable Facility. (Osbourne, Steve 1993. Waste Management Inc.. Personal Communication with Elizabeth Margles, HSA. April 8, 1993)

¹⁸ Region of Ottawa-Carleton Household Hazardous Waste Depot. (Lefebvre, Phil 1993. Region of Ottawa-Carleton Household Hazardous Waste Depot. Personal Communication with Larry Fedec, MMD. April 6, 1993)

One facility was closed after nine months of operation.¹⁰

3.5.2 Scavenging Animals, Birds and Insects

An increase in flies in the summer has been noted at one facility. However, the increase is no more significant than at a typical farm. The other facility has experienced a severe rodent and gull effect.¹¹

3.5.3 Emission/Air Quality

One facility noted a fog effect at the compost site. Loss of moisture from the compost pile due to forced aeration caused an extensive fog problem. This was not mitigated and the facility was closed.¹²

3.5.4 Dust

The staff at this same facility experienced a dust effect inside the processing building. The effect was mitigated.¹³

3.6 Residential Blue Box MRF Facilities

3.6.1 Odour

¹⁰ The Wright County Compost Facility in Minnesota received three odour complaints from local residents. Two of these complaints were received before a biofilter was installed, which seems to have solved the problem. (Davis, Chuck 1993. Wright county Compost Facility. Personal Communication with Elizabeth Margles, HSA, April 6, 1993)

The Reidel Corporation compost Facility in Portland, Oregon received numerous odour complaints from local residents. The facility was closed after nine months of operation. (Reid, Jeep 1993. City of Portland. Personal Communication with Larry Fedec, MMD April 15, 1993)

¹¹ Davis, Chuck 1993. Wright County Compost Facility. Personal Communication with Elizabeth Margles, HSA. April 6, 1993.

The Reidel Corporation's compost site was effected with a severe rodent and bird problem. Pest control was initiated but the facility was closed after nine months of operation. (Reid, Jeep 1993. The City of Portland. Personal Communication with Larry Fedec, MMD. April 15, 1993)

¹² Ibid

¹³ The Reidel Corporation facility installed modifications inside the processing facility to collect dust. (Ibid)

the effects were corrected.⁶

3.3.2 Traffic

This facility received a few complaints regarding traffic tie-ups due to trucks making left hand turns into the facility. There are eight more trucks per day when the facility is operating and the effect has been minimal.⁷

3.3.3 Economics

The operator of this privately owned composting facility was concerned that his business was suffering because of waste being hauled over the border to the U.S..⁸

3.4 In-Vessel Composting Facilities

3.4.1 Odour

One in-vessel facility was surveyed. The operator stated that odour had been an effect, which has since been mitigated.⁹

3.5 Mixed Waste Processing Facilities

3.5.1 Odour

Odour effects on residents were a problem at both the mixed waste processing facilities surveyed. One facility mitigated the effect with a new design feature.

⁶ Scott's Composting Farm received numerous odour complaints from residents. The facility was shut down until the operations were contracted to Compost Management Inc. whose staff manage and mix the compost to reduce significantly any odour. (Scott, Jim, 1993. Scott's Composting Farm. Personal Communication with Elizabeth Marges, HSA, April 6, 1993)

⁷ Scott's Composting Facility (Ibid).

⁸ Jim Scott believes that too much waste is being hauled over the border to the U.S. because their tipping fees are "artificially low" (Ibid)

⁹ Bob Sawyer at the Metro Toronto Dufferin Compost Facility stated that there had been odour effects. However, a biofilter was installed which solved the effect. (Sawyer, Bob 1993. Metro Toronto Dufferin Compost Facility. Personal Communication with Larry Fedec, MMD April 14, 1993.)

3.2 Wet/Dry Composting Facilities

3.2.1. Odour

Of the two wet/dry composting facilities surveyed, one noted an odour effect.³

3.2.2 Noise

Again, one of two surveyed wet/dry composting facilities noted a noise effect, which has since been mitigated.⁴

3.2.3 Scavenging Animals and Birds

One facility experienced an increase in seagulls circling the facility. This has not been mitigated.⁵

3.3 IC&I Composting Facilities

3.3.1 Odour

One IC&I compost facility was surveyed. The facility's operations caused significant odour effect for local residents. The facility was shut down until

³ Compost Management Inc.'s Paul Taylor and Harmony Planning Consultants' Jim Cuthill noted that two "minor" (Cuthill, Jim and Taylor, Paul, 1993. Harmony Planning Consultants and Compost Management Inc.. Personal Communication with Elizabeth Margles, HSA. April 12, 1993) odour effects were indicated by residents. Representatives of the two companies visited the residents experiencing the odour effect, explained the composting process and occasionally provide these residents with compost for their gardens. This seems to have solved the problem.

⁴ Trucks unloading material at the City of Mississauga Pilot Scale Compost Facility created a noise effect for a nearby cemetery. Funeral and burial services were disrupted by the back-up noises from the facility trucks. This has been mitigated by consideration of the facility staff not to back-up trucks during inopportune times.

⁵ The City of Mississauga Pilot Scale Compost Facility is attracting seagulls. Noisemakers were used initially to frighten away the gulls, but this created too much noise. The management is considering using birds of prey to frighten the gulls, but this is an expensive undertaking - approximately \$50 000 a year to maintain. (Cuthill, Jim and Taylor, Paul, 1993. Harmony Planning consultants and Compost Management Inc.. Personal Conversation with Elizabeth Margles, HSA. April 12, 1993).

3.1 Leaf and Yard Waste Composting Facility

3.1.1 Odour

When asked:

Have there been any impacts on people, businesses, land, air, ground water from the operation of the facility?

Have there been any complaints about the operation of the facility?

How have these identified effects been mitigated?

The most frequently registered complaint regarding leaf and yard waste composting is that of odour. This effect has been reported at three of the five leaf and yard waste composting facilities interviewed.¹

3.1.2 Scavenging Animals and Birds

Of the five leaf and yard waste composting facilities surveyed, only one stated any scavenging animal or bird effect associated with the facility.²

¹ The employees of The Township of Pittsburgh, Ontario Leaf and Yard Waste Composting Facility were effected by odour emitted from the 200 tonnes of food processing seeds brought to the site. This has been mitigated with a more frequent turning of windrows (Rhodes, John, 1993 Township of Pittsburgh Leaf and Yard Waste Composting Facility. Personal Communication with Larry Fedec, MMD, April 6, 1993).

The Metro Toronto Avondale Leaf Composting Area registered "one or two"(Corvinelli, Caesar, 1993. Metro Toronto Leaf Composting Area. Personal Communication with Larry Fedec, MMD, April 14, 1993) odour complaints. However, Mr. Corvinelli is not sure if the odour was emitted from the compost site or the landfill site directly adjacent to it.

The City of Scarborough Composting Facility received many odour complaints. This effect was mitigated by contracting the operation of the facility to Compost Management Inc. which turns the material more frequently. The contract for operations between the City of Scarborough and Compost Management Inc. is tied to no more odour effects (Dale, Debra, 1993. City of Scarborough Composting Facility. Personal Communication with Elizabeth Margles, HSA, April 8, 1993).

² The City of Scarborough Leaf and Yard Waste Composting Facility has noted an increase in killdeer birds congregating at the site, searching for food. This has not been mitigated.

The same facility has noticed an increase in insects at the leaf and yard waste composting site. The insects remain localized though, and therefor have not caused an effect on residents.

9. Metro Commissioners St. MRF
Bob Sawyer
April 13, 1993
10. Metro Toronto Avondale Leaf Composting Area
Caesar Corvinelli
April 14, 1993
11. Metro Toronto Dufferin Compost Facility
Bob Sawyer
April 14, 1993
12. City of Sarnia Compost Facility
Ken McKenzie
April 15, 1993
13. Reidel Corporation (City of Portland)
Jeep Reid
April 15, 1993
14. Region of Halton Wet/Dry Compost Pilot
John Smith
April 16, 1993
15. Hensall Composting Facility
Mark Jacobs
April 16, 1993

(Five other facility operator interviews were not conducted because the operators did not return telephone calls).

3.0 Summary of Social Effects by Facility Type

NB: The same questions were applied to all facility types. Therefore, the questions will only be noted once in this document.

2.0 List of Facility Operators and Key Contacts

The following is a complete list of facilities and facility operators/administrators interviewed and the date of the interviews.

1. Region of Durham Recycling Centre
Peter Watson
April 6, 1993
2. Township of Pittsburgh Compost Facility
John Rhodes
April 6, 1993
3. Region of Ottawa-Carleton HHW Depot
Phil Lefebvre
April 6, 1993
4. Scott's Composting Farm
Jim Scott
April 6, 1993
5. Wright County Compost Facility (Minnesota, U.S.A.)
Chuck Davis
April 6, 1993
6. City of Scarborough Composting Facility
Debra Dale
John Minor
Ian John Ashton
April 8, 1993
7. Waste Management Inc. Dry Recyclable Facility
Steve Osbourne
April 8, 1993
8. City of Mississauga Pilot Scale Compost Facility
Jim Cuthill
Paul Taylor
April 12, 1993

SCHEDULE D:

FACILITY OPERATOR INTERVIEW SUMMARY

1.0 Facility Selection Criteria/Approach

Facility operator interviews were conducted by Hardy Stevenson and Associates and MM Dillon in April, 1993. The interview list of facilities and facility operator representatives was developed based on Resource Integration Systems (RIS) expertise and knowledge of North American facilities.

The facilities selected for interview included those in the Greater Toronto Area (GTA) as well as international examples of public and private, operating/non-operating and, successful/non-successful:

- . leaf and yard waste composting facilities,
- . wet/dry composting facilities,
- . IC&I composting facilities,
- . in-vessel composting facilities,
- . mixed waste processing facilities,
- . regional blue box processing facilities (MRFs),
- . wet/dry processing facilities,
- . IC&I processing facilities and,
- . household hazardous waste (HHW) collection facilities.

The interview for facility operators (See page D-14) was comprised of nine questions regarding:

- . present and future 3Rs trends in the residential and the IC&I sectors,
- . behaviours and attitudes of 3Rs practices in the residential and IC&I sectors,
- . systemic social and/or biophysical impacts and/or effects of facility operations,
- . complaints registered because of facility operations,
- . mitigation measures considered and/or implemented and,
- . quality and quantity of materials managed.

SCHEDULE D

Facility Operator Interview Summary

to expand their 3Rs initiatives _____
Waste Audits and Waste Reduction Plans _____
None of the Above _____
Other (list) _____

What would you say are the most important factors for the Industrial and Commercial sectors in developing a waste management strategy for a large urban area, like the Greater Toronto Area? (Do not read, List)

Costs to Private Sector _____
Public Opinion _____
Greatest Waste Diversion _____
Least expensive option for government _____
Other _____

One option for waste management that other regions have considered is to have residents, businesses and industries separate their waste into different categories called streams. Typically, there are two or three streams. For example, in a 3-stream system waste is separated into (1) Food Waste, (2) Dry Recyclable Waste, such as cardboard or glass, and (3) Garbage. How do you think your members would respond to this type of waste management system? **(NOTE TO INTERVIEWERS: FOR NON-HOTEL, RESTAURANT, AND FOOD PROCESSING ASSOCIATIONS, CHANGE TO ONLY TWO STREAM SYSTEM OF DRY RECYCLABLES AND GARBAGE).**

Are 3Rs educational or promotional materials requested by your members? Who do you think should provide these materials?

How would your association like to be consulted on your future involvement in 3Rs activities?

How important do you think it is to your members to have a public image that is proactive on environmental issues?

Can you identify any 3Rs regulations or guidelines that have adversely affected your members? (List of them to check)

Do you know if any of your members had significant changes to their day-to-day operations as a result of any 3Rs initiatives? (If yes, probe for type of changes)

Are you aware of any safety or legal liability problems that have been created by 3Rs initiatives?

How have workers, management, and unions responded to 3Rs initiatives?

How do the current waste management requirements such as landfill bans, tipping fees, and user fees, create any competitive disadvantages/advantages for any of your members, particularly, when competing with companies outside of Ontario?

What 3Rs actions are the association and member businesses considering for the next two years?

What could be provided to support your member's participation in waste diversion?

Have your members been involved in developing waste management strategies that look at more efficient processes and technologies (for example, the more efficient use of product inputs and improved technology), rather than strictly recycling programs? (Are they looking at such strategies in this area for the future)?

What factors do you think would increase your members participation in the 3Rs? (Do not read, check off when mentioned)

More information about 3Rs	_____
Improved collection of recyclable materials	_____
Improved Markets for Recyclables	_____
Lower costs of recycling	_____
Increased 3Rs education	_____
Landfill Bans on some Materials	_____
Government financial assistance to businesses	_____

Technological Changes to Reduce Waste _____

Contract a Waste Hauler that takes recyclables _____

What role has your association played in waste management for your members? (eg. sharing of educational material)

I'm going to read a list of items that could encourage company involvement in 3Rs activities? Please identify whether these items were; (1) Very Important, (2) Important, (3) Not Very Important, or (4) Not Important at all in determining your member companies involvement in the 3Rs?

Employee Interest	_____
Cost-Competitiveness	_____
Response to or anticipation of regulation	_____
Environmental Concern	_____
Good for Public Image	_____
Easily Implementable	_____
Landfill Tipping Fees	_____
Shareholder Interest	_____
Other	_____

Is there a difference in response to or developing 3Rs initiatives by size of company in your association?

What do you think are the main obstacles for your members in the implementation of 3Rs programmes? (Do not read - check as many as apply)

1. Costs of Implementation _____
2. Lack of Markets for Recyclables _____
3. Difficulty and Changes to Regulations _____
4. Lack of Effectiveness of Existing Programs _____
5. Lack of Knowledge on 3Rs _____
6. Other _____

Of the obstacles you have just mentioned, which would you say is the biggest obstacle for your members?

6.0 Industrial, Commercial, And Institutional Survey

Association Name: _____

Contact Person: _____

Telephone Number: _____

Date of Interview: _____

How many companies are in your association? _____

What percentage of the firms in your association have business operations in the Greater Toronto Area? (Municipalities of York, Metro, Durham, Peel & Halton) _____

What are the typical types of waste generated by your members (food waste, packaging, etc.)? _____

Do member businesses support waste reduction as a goal for their individual businesses? _____

I'm going to read a list of 3Rs initiatives that some companies are involved in. Can you tell me approximately what percentage of your association members are involved in each type of these initiatives? _____

INITIATIVES

Packaging Changes to reduce waste _____

Purchasing practices that promote 3Rs _____

Reduction of materials used _____

Separation of materials for garbage and recycling _____

Use of recycled materials _____

Manufacturers Council and United Food and Commercial Workers Union on 3Rs initiatives.

Increased waste management costs, that are added to other industry costs and then passed onto the consumer, creates a competitive disadvantage for members.

In the next two years the Council will:

- . continue existing 3Rs efforts;
- . continue support for OMRI; and,
- . work on Industry Packaging Stewardship Model.

As examples of initiatives that would support members' participation in waste management initiatives, the Council representative cited:

- . The need to develop a level playing field. The Grocery sector believes it is paying an inequitable portion of societal waste management costs; and,
- . The need for market development for recyclable materials.

Waste management programs, aside from recycling, include selling food waste for animal feed and donating food to food banks.

The Council would like a joint industry and government role in the development of promotion and educational material to members.

There is a preference for direct consultation with the government rather than having a consultant report on the Council's role with policy development.

The Ontario Environmental Affairs Committee of the CCGD meets every 3 or 4 months to discuss government regulation and to deal with government consultation issues.

The Canadian Council of Grocery Distributors representative rated items that encourage company involvement in 3Rs activities as follows:

• Employee Interest	1
• Cost Competitiveness	1
• Response to or Anticipation of Regulations	2
• Environmental Concern	1
• Good for Public Image	1
• Easily Implementable	1
• Landfill Tipping Fees	2
• Shareholder Interest	unknown-some privately held companies
• Other	
Being environmentally active is now part of normal corporate culture. It is important for younger people and a competitive advantage for companies.	

Size is an important factor in implementing 3Rs initiatives. Members that are part of chains have more financial and administrative resources than those businesses that are franchises or independent.

The main obstacles for members' implementation of 3Rs programs are:

- Health, hygiene and safety issues;
- Lack of markets for recyclables; and,
- Space and labour limitations in stores.

There is concern from Association members about potential regulations. These include:

- Returnable bottle legislation. Concern about health, safety and cost.
- Possible landfill ban on food would eliminate the constant site needed by members to which they can direct food that cannot be donated or sold.

Members have undergone significant day-to-day operational changes which vary according to the specific business.

As a possible legal liability problem, the Council's representative cited health concerns from possible returnable bottle and recycled packaging legislation.

Management and unions are working together on 3Rs industry initiatives. The Canadian Council of Grocery Distributors is working with the Grocery Product

To support member participation in waste diversion programs, the Association would like:

- . government response to Association concerns;
- . continued participation in policy development; and,
- . government awareness of financial and operational realities.

The Association, as a major waste generator with the potential to divert a significant amount of waste, would welcome a partnership relationship with government to deal with waste diversion problems.

5.7 Canadian Council of Grocery Distributors

The Council has twenty three member associations, with fifty five subsidiaries.

The waste typically generated by member associations is made up of food, food packaging, and transportation packaging.

There is wide support for waste reduction as a goal for individual members.

The Council's representative measured member participation in the following 3Rs initiatives:

Packaging changes to reduce waste	Almost All
Purchasing practices that promote 3Rs	Many
Reduction of materials used	All
Separation of materials for garbage and recycling	Many
Use of recycled materials	Almost All
Technological changes to reduce waste	n/a
Contract a waste hauler that takes recyclables	All

The role of the Council in waste management endeavours for its members includes:

- . sharing educational material;
- . sharing information;
- . advising members;
- . working with environmental groups; and,
- . lobbying efforts with government.

The Association has provided to member businesses:

- education (seminars, information sharing);
- representation to MOEE (comments on policy and papers); and
- involvement in developing code of ethics.

As issues that influence involvement in 3Rs initiatives, the Association's representative rated:

- Cost Competitiveness Very Important
- Response to/Anticipation of Regulations Very Important
- Environmental Concern Important
- Landfill Tipping Fees Very Important

There is a difference in the size of business in response to or development of 3Rs programs.

The representative noted the following obstacles to implementing 3Rs initiatives:

- lack of space on construction sites for source separation;
- financially not always worthwhile;
- operationally, not all workers understand or have the time;
- lack of markets;
- occasional contamination of materials by neighbours; and,
- illegal dumping in warehouses.

Tipping Fees and Landfill Bans were cited as regulations/policies that have adversely affected member businesses.

Businesses have had significant day-to-day changes operationally, financially and administratively.

Management has responded well to 3Rs programs. Poor communication between management and workers may have stalled increased participation by workers in 3Rs programs.

In the next two years there will be continued education and continued representation to the MOEE by the Toronto Construction Association.

Full participation and cooperation of staff and students in the 3Rs initiatives outlined in the Recycling Handbook, and increased awareness of what is being thrown out (through audits) are priorities for the next two years.

The implementation of a MOEE reporting mechanism that would require every school to document its 3Rs activities, and continued funding for waste diversion programs, would help to support participation in 3Rs activities.

Reducing litter at lunchtime, reusing paper, and pilot composting programs have been implemented in addition to recycling programs.

Increased awareness by staff and students about the quantity and type(s) of waste being generated through educational materials, waste audits, and the inclusion of waste management issues into the curriculum through Ministry of Education Guidelines, would increase staff and student participation in 3Rs initiatives.

Educational and promotional materials are provided through an MOEE grant program. However, some of the material is irrelevant for schools. The Board's representative noted that every association has different approaches to 3Rs initiatives and information should be specific to the association or the approach. Grants to produce educational and promotional materials in-house would be helpful.

The Toronto Board of Education wants the opportunity to provide input when MOEE is developing 3Rs policies/regulations.

5.6 The Toronto Construction Association

The Association has 1,200 member companies, all with offices in the Greater Toronto Area.

There is a variety of construction, demolition and packaging waste generated by member companies.

Member businesses support waste reduction as individual companies and through the Association.

Member companies are primarily involved in reusing and recycling materials to reduce waste.

books and printer ribbons for recycling is contracted out.

The Recycling Coordinator of the Board of Education has produced a recycling handbook for the schools.

The Toronto Board of Education representative measured the following as determining factors for schools' involvement in the 3Rs:

Employee Interest	Important
Cost-Competitiveness	n/a
*Response to/Anticipation of Regulations	Not Very Important
Environmental Concern	Not Very Important
Good for Public Image	Important
Easily Implementable	Important
Landfill Tipping Fees	n/a
Shareholder Interest	n/a

* The Recycling Coordinator regards regulations as very important but schools and/or teachers may not.

Smaller schools (usually elementary) have better 3Rs programs than larger schools (usually secondary).

As the obstacles to the implementation of 3Rs programs, the Board's representative noted:

- . staff have other priorities;
- . lack of interest;
- . failure to be mandated by the Province; and,
- . lack of support from staff/secondary students (the main obstacle).

The cleaning staff have had to modify their daily operations to handle garbage and recyclables. Caretakers do not believe separating waste is in their job description, but this attitude is gradually changing.

There have been concerns about the storage of materials and students carrying blue boxes full of glass bottles. However, no legal liability problems have occurred.

Mandated participation may be required for some staff, but some do not want their activities mandated.

- . a healthier economy;
- . a toxic taxi for small business; and,
- . an infrastructure for markets and an improved collection system.

Member businesses in the Federation are too small to implement technological processes to reduce waste.

The Federation of Independent Business cited the following as important factors for the IC&I sector in establishing a waste management strategy for large urban areas:

- . fairness of costs;
- . consistent regulations; and,
- . pay-per-use.

The Federation wants to be consulted by government on any relevant issues. The Federation would like the opportunity to view draft by-laws and reports, and to be contacted during the preparation of documents.

5.5 The Toronto Board of Education

There are one hundred and fifty seven schools in the Toronto Board of Education. Except for the outdoor education school, all are located in the Greater Toronto Area.

The schools typically generated fine paper, paper towels, and lunchroom waste (organic and packaging). Technical studies programs generate metals and printshop materials.

Though the Board has issued a recycling directive it is up to the individual school to implement programs. All have done so to varying degrees.

The Board's representative rated the following 3Rs initiatives in which schools are involved:

- 45% Implementing packaging changes
- 100% Modifying purchasing practices
- 50% Reducing the amount of materials used
- 100% Separating materials for garbage and recycling

Wherever possible recycled materials are used, without sacrificing quality or safety. The City of Toronto collects waste and blue box materials. Collection of fine paper,

Shareholder Interest n/a

* Small businesses are not involved in much PR work.

Other:

Collection Infrastructure Very Important
Collection infrastructure is important as many small businesses are and could be served by municipal waste haulage, recyclable collection and toxic taxis.

Though there is a difference in response to or developing 3Rs initiatives by size of business, only 1.5% have more than one hundred employees.

The main obstacles to adopting 3Rs programs are:

- Market infrastructure and the costs of collection;
- Availability of cost effective technologies; and
- Lack of information that is appropriate to small business.

Any regulations were noted by the Federation representative as negative, especially to small businesses. For example, calculating sales tax is ten to twenty times more expensive for small businesses than larger companies.

Changes to day-to-day operations of member businesses have occurred, but these changes are as diverse as the membership and have been implemented in response to specific circumstances.

There has been positive response to 3Rs initiatives by the various levels in small businesses (workers, managers, owners).

Tipping fees were cited as creating competitive disadvantages for small businesses. The Federation of Independent Business believes that there is an inequitable distribution of waste management costs between the IC&I and residential sector, where IC&I carries the bulk of the costs. In particular, this puts small businesses at a disadvantage. The Federation would like to see true cost accounting for fees.

3Rs initiatives that will be adopted over the next two years will depend on the specific business.

To provide support for increased participation in waste diversion, the Federation would like:

There are no "typical" types of waste generated because the Federation membership is so diverse.

There is a strong commitment to the environment and waste reduction as a goal for individual businesses.

The Federation's representative offered general measurements of members' involvement in 3Rs initiatives as follows:

- . Very few adopted packaging changes to reduce waste;
- . The majority adopted purchasing practices that promote 3Rs;
- . The majority have reduced materials used;
- . There is no data regarding separation of materials;
- . The majority have adopted the use of recycled materials;
- . Member businesses are too small for technological changes; and,
- . Very few contract a waste hauler to take recyclables.

The Association's role in waste management for its members includes:

- . The Federation conducted an environmental survey and distributed the results to businesses;
- . The Federation published an environmental checklist for small businesses in cooperation with Pollution Probe, as a response to a general lack of information for small businesses; and,
- . The Federation participated in the Canadian Standards Association development of Environmental Management Standards that recognize small business needs.

The Federation's representative rated a list of issues that relates to encouraging involvement in 3Rs activities as follows:

- | | |
|---|--------------------|
| . Employee Interest | Very Important |
| . Cost-Competitiveness | Important |
| . Response to/Anticipation of Regulations | Not Very Important |
| . Environmental Concern | Very Important |
| . *Good for Public Image | Not Very Important |
| . Easily Implementable | n/a |
| . Landfill Tipping Fees | Important |

box items;

- . Purchasing policies by government that support recycled content are lacking; and,
- . The general Association belief is that government does not understand the economies of scale necessary to develop recycling industries.

All member businesses have had significant changes in daily operations due to 3Rs initiatives.

Liability for companies dealing with refillable containers might become an issue in the future depending on what fluid is in a container at any one time.

Management has been noted as being more enthusiastic to 3Rs program adoption than workers who are more concerned with keeping their jobs.

The Packaging Association of Canada believes that tipping fees in Ontario are at the right rate and cross-border waste export is lower than reported in the media.

To support members' increased participation in 3Rs programs, the Association would like to see the following:

- . Government procurement of recycled products;
- . Tax incentives for recycling research and development;
- . Cooperative enterprises between business and government; and,
- . Harmonization of regulations.

Many businesses in the Packaging Association of Canada have implemented 3Rs programs other than recycling.

The Association desires a closer consultative role with the government to help them realize the economic consequences of certain initiatives. The Association would welcome multi-stakeholder round table consultation rather than interviews to discuss issues.

5.4 Canadian Federation of Independent Business

The Federation has approximately 83,000 members nationally: ten percent have operations in the Greater Toronto Area.

member businesses' 3Rs involvement:

• Employee Interest	Very Important
• Cost Competitiveness	Very Important
• Response to/Anticipation of Regulation	Very Important
• Environmental Concern	Very Important
• Good for Public Image	Important to Not Very Important
• Easily Implementable	Very Important
• Landfill Tipping Fees	Important to Not Very Important
• Shareholder Interest	Important to Not Very Important
• Other:	
Government Procurement Policies	Very Important
Market Development	Very Important

Cost-competitiveness was rated as the most important influencing factor for member businesses' involvement in 3Rs initiatives, although it was also noted that, currently, 3Rs initiatives are not easily implementable.

The Packaging Association of Canada representative noted that companies are reluctant to publicize their efforts, fearing that the public will perceive a public relations initiative rather than a 3Rs initiative.

The lack of government support to purchase products was also cited as an important factor to stimulate member businesses' involvement in 3Rs. It was noted that the government is reluctant to pay more for recycled products.

Though companies have moved to more environmentally sound products, many consumers are hesitant to buy these products, fearing substandard quality, higher prices and more effort. The Association representative predicted a ten year period of change for consumer behaviour.

Size of businesses is a determining factor in the implementation of 3Rs programs.

Obstacles to the implementation of 3Rs programs include: costs; lack of markets; and, technological changes that are essential but costly.

The Packaging Association of Canada representative highlighted some 3Rs regulations/guidelines and principles that have adversely affected the member businesses. They are:

- Deposit systems discourage blue box use; there is a need for profitable blue

If three stream waste management plans are cost efficient and environmentally effective, methods to deal with waste, then this type of system could be welcomed by business (unlike the blue box program which may be somewhat environmentally effective but not at all cost efficient).

For a large portion of member businesses of the Board of Trade of Metropolitan Toronto, it is very important that they have a public image of being environmentally proactive.

5.3 Packaging Association of Canada

The Packaging Association of Canada has nine hundred member businesses, thirty-five to forty percent of which have operations in the Greater Toronto Area.

There is no "typical" type(s) of waste generated by member businesses since the make-up is so diverse.

The Packaging Association representative noted that ninety percent of member businesses are supportive of waste reduction as a goal for individual businesses.

The representative estimated the percentage of member businesses' involvement in 3Rs initiatives as follows:

60%	implementing packaging changes to reduce waste
40%	implementing purchasing practices that promote 3Rs
35%	reducing materials used
80%	separating materials for garbage and recycling
35-40%	using recycled materials
Almost All	implementing technological changes to reduce waste
80% +	contracting a waste hauler that takes recyclables

The association has developed a National Packaging Protocol (NAPP) concept and a Task Force with the goal of harmonizing regulations and guidelines.

The Packaging Association participates in OMMRI and Provincial initiatives. Further, the Association follows international issues such as the possible harmonization of packaging practices in North America. The Association is lobbying California to change its 65% required recycled content in glass bottles.

The Packaging Association representative rated the importance of the following to

The Board's representative noted the lack of education and a necessary infrastructure as significant obstacles to adopting 3Rs programs.

The costs to business for waste management/diversion have been indirectly increased by the Waste Management Act, Provincial restrictions regarding landfill siting, and the prohibiting of incineration and transporting waste to willing communities.

The current waste management requirements such as tipping fees create a competitive disadvantage among businesses because fees are so much higher in Ontario than in surrounding jurisdictions, including the U.S. This situation forces businesses to haul their waste to areas with affordable tipping fees, (like the U.S.) at a transportation cost to waste generators. This also causes a reduction in business for landfill owners in Ontario.

Some businesses have installed retrofits for machinery as waste reduction endeavours.

Workers have responded well to 3Rs initiatives, management less so.

In the next two years, the Board of Trade of Metropolitan Toronto and member businesses will consider the implementation of further 3Rs initiatives. They recognize that they might be legislated to implement specific 3Rs programs.

The Board's representative cited increased markets and education regarding existing markets for diverted material as helpful in increasing member businesses 3Rs involvement in 3Rs activities. A greater certainty regarding what regulations will be handed down from the Province would increase program implementation. It would be helpful for businesses to be aware of Provincial proposals or policies being considered for the future.

This uncertainty regarding possible Provincial guidelines and regulations lessens the opportunity for businesses to develop and implement 3Rs programs, because the Province could mandate 3Rs activities that would alter existing programs at a further cost to business.

Some businesses have adopted technological changes that support the 3Rs (e.g., chemical glue manufacturer altering its reprocessing system to produce a non-toxic product).

Economic and environmental factors, as well as public opinion, were cited by the Board's representative as important factors in developing waste management strategies in the IC&I sectors.

lead to more effective waste management strategies in large urban centres like the GTA.

The Association would like a continued and increased consultative role with the MOEE to develop industry specific waste management policies.

The Ontario Restaurant Association representative noted that it is very important for member businesses to have a proactive image regarding the 3Rs.

5.2 The Board of Trade of Metropolitan Toronto

The Board of Trade of Metropolitan Toronto has approximately thirteen thousand member businesses with operations in the GTA.

The Board representative could not speak to the issue of typical type(s) of waste generated by member businesses because the make-up of businesses is so diverse. The same was noted for questions regarding what percentage of businesses are involved in specific 3Rs initiatives. However, member businesses do support waste reduction as a goal.

The Board of Trade produced a Waste Management Code of Practice which members were encouraged to adopt. The Board also publishes a monthly magazine in which there have been articles relating to successful 3Rs programs implemented by member businesses.

The Board of Trade's representative rated the importance of the following in member businesses' 3Rs involvement:

• Employee Interest	Very Important
• Cost-Competitiveness	Very Important
• Response to/Anticipation of Regulation	Very Important
• Environmental Concern	Very Important
• Good for Public Image	Very Important
• Easily Implementable	Important
• Landfill Tipping Fees	Important
• Shareholder Interest	Important

The size of a business is a factor in responding to or developing 3Rs initiatives.

·	Response to/Anticipation of Regulations	Not Very Important
·	Environmental Concern	Not Very Important
·	Good for Public Image	Important
·	Easily Implementable	Very Important
·	Landfill Tipping Fees	Important
·	Shareholder Interest	Not Very Important

It was noted that aggressive 3Rs initiatives are more costly for smaller, non-chain restaurants that do not have the financial backing that chain restaurants might have (e.g., McDonalds).

The main obstacles to the implementation of 3Rs programs are cost and the lack of municipal infrastructures to support the programs. However, there are no existing regulations that adversely affect member businesses.

One major restaurant has changed its operations to include a 3Rs program by separating and selling its food waste to a farmer for animal feed.

There could be some legal liability problems in executing 3Rs programs for restaurants, in that there are health concerns/risks in storing food waste and a lack of storage space for food waste in most restaurants.

Most restaurant staff are supportive of 3Rs endeavours. Younger staff are more aware of environmental issues. Managers and owners may be less supportive because of the costs associated with implementing waste reduction/management programs.

The lack of standardization of waste management/collection programs between municipalities creates some competitive disadvantages among member businesses. For restaurants in municipalities where businesses have to pay higher waste collection costs, less money can be redirected into the business and accumulate as profit.

In the next two years the Ontario Restaurant Association will remain active in the MOEE Waste Reduction Office's Wet Waste Steering Committee. The Ontario Restaurant Association will support whatever endeavours and policies the Canadian Restaurant Association undertakes.

Increased participation rates could be achieved with lower program costs, according to the association representative.

Waste audits to identify the types of waste generated by different associations would

CASE STUDY:	G.I.P.P.E.R. (Governments Incorporating Procurement Policies to Eliminate Refuse), CITY OF TORONTO, Coordinator
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) 1. Current municipal membership predominantly GTA. 2. Setting: All
Ownership/Financing:	(Municipal/Private/Not for Profit) Institutional. Membership consists of waste management and purchasing departments of federal, provincial and municipal levels of government and other concerned organizations, including all GTA upper-tier municipalities, all Metro area municipalities, Markham and the Region of Waterloo. Metro and Toronto are founding members, Toronto Purchasing and Materials Supply Division chairs and coordinates, MBS vice-chairs and shares information (see MBS Green Workplace case study).
Market/Purpose:	(Residential/Institutional/Commercial/Industrial) · Market: Institutional. · Goal: contribute, in the institutional purchasing sector, to achieving an overall, national, 50% reduction in waste generation by the year 2000. · Objectives: - reduce quantity of waste produced by government bodies and associated agencies, boards, commissions and their suppliers; - provide markets necessary to promote and sustain reduction, reuse recycling and recovery of materials initiatives; - develop a process to facilitate co-operative or joint purchasing among different levels of government so as to substantially influence and enhance point above.
Method/Type:	(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational.) Institutional/Stewardship. The G.I.P.P.E.R. committee establishes purchasing guidelines, assisted in producing a directory of environmentally sound products, and communicates with its members through regular meetings of the committee, seminars and a newsletter.

CASE STUDY:	G.I.P.P.E.R. (Governments Incorporating Procurement Policies to Eliminate Refuse), CITY OF TORONTO, Coordinator
Category of 3Rs:	(Reduce/Reuse/Recycle) All
History/Progress:	(Approval Date, Start-up Date, Years of Operation) Start-up: June 1989 - 3.5 years of operation Progress: To date policies, guidelines and protocols have been established covering: materials and purchasing in general, cleaning products, compost, construction and demolition materials, paint, paper, and packaging. This will be extended in future to cover: plastics and rubber, petroleum, oils and lubricants, energy efficient lighting products, and other materials.
Government Involvement:	(Voluntary/Incentives/Bylaws) Voluntary scheme. Relies on pooled purchasing power rather than legislation or price incentives. To lend support, Toronto adopted a Statement of Principle in 1989. G.I.P.P.E.R., Metro and most of the members have followed with similar statements. See further comments in Evaluation.
Potential Participation:	(Population/Households/Employees/Enterprises) Currently GTA-wide in scope, purchasing departments at all levels of government.
Targeted Participation:	(Population/Households/Employees/Enterprises) As above.
Actual Participation:	(Population/Households/Employees/Enterprises) Currently 29 member organizations, see Ownership section.
Potential Capture/Diversion:	(Tonnes-Tons/Annum) Example: GVRD - local government services contribute over 6% of IC&I waste.
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) 50% diversion by year 2000.
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) n/avail.
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted) n/avail.

CASE STUDY:	G.I.P.P.E.R. (Governments Incorporating Procurement Policies to Eliminate Refuse), CITY OF TORONTO, Coordinator
Documentation:	<p>(1. Contact Person, Address, Phone) Lou Pagano, Chair Director of Purchasing & Materials Supply Purchasing and Materials Supply Division Management Services Division City of Toronto, City Hall 18th Floor, West Tower Toronto, Ontario M5H 2N2 Tel: (416) 392-7311 Fax: (416) 392-0801</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) G.I.P.P.E.R. Committee, 1992, <u>G.I.P.P.E.R.'s Guide to Environmental Purchasing</u>. City of Toronto. October. G.I.P.P.E.R. Committee, 1991, <u>Directory of Suppliers of Environmentally Sound Products and Services</u>. City of Toronto. Vol. I - January, Vol. II - June. G.I.P.P.E.R. Committee, 1989 - 1992, <u>Purchasing for a healthy environment</u>. Newsletter, 6 issues.</p>

EVALUATION:	
Reasons for Success/Lessons Learned:	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <p>Purchasing Policy. There is a strong concern to give weight to 3Rs content, without affecting price competitiveness and basic product performance. The Metro and Toronto Statements of Principle allow environmentally sound products to be evaluated based on the product's overall merits, such as availability, intended use, recyclability, price, etc. However, because the purchasing decision is independent of a strict price preference policy, the possibility of artificial floors and ceilings is eliminated.</p> <p>Certification. The present system of certification is too time-consuming. While G.I.P.P.E.R. guidelines recommend that Environmental Choice should always be specified, but there are few such products. Although MBS does stock 100 environmentally friendly products at its Office Products Centre, it is generally beyond the resources of G.I.P.P.E.R. or its members to undertake their own certification program. As a result, the directory can only be based, at present, on manufacturers' claims.</p>
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)</p> <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <p>n/avail.</p>
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <p>Fully applicable. Although national and province-wide in scope, G.I.P.P.E.R. is predominantly a GTA initiative at present.</p>

CASE STUDY:	GTHBA: MOLEHILL & GTHBA/ORTECH: BUILD GREEN PROGRAM
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) 1. Greater Toronto 2. Setting: All
Ownership/Financing:	(Municipal/Private/Not for Profit) The Build Green Program is a predominantly Ontario partnership involving the private sector, a trade association and government agencies. GTHBA is a home builders trade association in Greater Toronto with over 885 member companies including builders, renovators, real estate firms, lawyers, consultants, etc. Molehill I was a GTHBA initiative. Molehill II had support from CMHC and MOE. "Build Green" initiatives are conducted jointly by GTHBA/ORTECH International with the participation and support of CMHC, MBS, MOE and MOH. The GTHBA/Ortech Build Green initiatives have close links with the MBS Green Workplace initiative (see MBS Case Study).
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) Residential Construction, Renovation & Related Demolition. Objective of Build Green Program is to promote and increase consumer, builder, retailer and manufacturer awareness of the potential for producing and using building materials which have recycled content.
Category of 3Rs:	(Reduce/Reuse/Recycle) All

CASE STUDY:	GTHBA: MOLEHILL & GTHBA/ORTECH: BUILD GREEN PROGRAM
Type/Method	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <p>Source Separation, Stewardship, Educational</p> <ul style="list-style-type: none"> · Making a Molehill Out of a Mountain was a project to study and promote the 3Rs in construction waste management for GTHBA member companies. It led to recommendations for a 3Rs pilot project in renovation, involving a "house strip" and 9 separate, predominantly residential, renovation projects. · Build Green Labelling is an initiative to promote the manufacture and use of building materials with recycled content, through licensing of the Build Green logo as a marketing label for Build Green products, facilitation of manufacturers and markets, and promotional activities aimed at both builders and the general public. <p>(Promotion/Education)</p> <ul style="list-style-type: none"> · Green Dream Home is a model home built of a wide variety of recycled materials, used as a home show exhibit to introduce the Build Green Program to the public. · Build Green Street is a subsequent exhibit for home shows focusing more specifically on Build Green products and 3Rs of construction waste management. · Build Green Curriculum has involved participation of 3 Ontario high schools in pilot projects to explore the Build Green message. Results will be featured as part of the 1993 Build Green Street. In 1993, a Build Green student challenge with donated prizes will encourage high school classes to compete in 3 areas: a Build Green video, a Build Green book, and design of a Build Green community. · Publications, Newsletters, Hotline. See Documentation.
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation)</p> <ul style="list-style-type: none"> · Making a Molehill Out of a Mountain - start-up summer 1989 · Build Green Program - start-up winter 1990 · Green Dream Home - 1991 Fall National Home Show · Build Green Street - 1992-93 Spring National Home Show

CASE STUDY:	GTHBA: MOLEHILL & GTHBA/ORTECH: BUILD GREEN PROGRAM
Government Involvement:	(Voluntary/Incentives/Bylaws) Voluntary trade initiative, underlying incentives/disincentives are landfill bans; rising tipping fees with penalty for mixed loads; and industry recognition that audits/waste management plans likely to be mandatory in near future.
Potential Participants:	(Population/Households/Employees/Enterprises) 885 plus member companies, DIY sector, and general public.
Targeted Participation:	(Population/Households/Employees/Enterprises)
Actual Participation:	(Population/Households/Employees/Enterprises)
Potential Capture/Diversion:	(Tonnes-Tons/Annum) 2.5 tons of waste/average single family home, or 1-2% of total waste stream. Residential demolition and renovations total 3-4% of total waste stream. All construction waste totals 15%.
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum)
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum)
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted)

CASE STUDY:	GTHBA: MOLEHILL & GTHBA/ORTECH: BUILD GREEN PROGRAM
Documentation and Attitude/Behavioral Surveys:	<p>(1. Contact Person, Address, Phone) Mr. Stephen Dupuis Greater Toronto Home Builders' Association 20 Upjohn Road North York, Ontario M3B 2V9 Tel: (416) 391-3445 Fax: (416) 391-2118</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) GTHBA, 1992, <u>Making a Molehill Out of a Mountain II</u>, Technical Report: New Home Pilot Projects. July. GTHBA/ORTECH, 1992, <u>Build Green Program: The Build Green Street</u> GTHBA, 1991, <u>Making a Molehill Out of a Mountain II</u>, Technical Report: Renovation Pilot Projects. June. GTHBA/ORTECH, 1991, <u>Build Green Program: The Green Dream Home</u>. REIC, Renova, RIS, Sheltair, Vilnis, 1991, <u>Making a Molehill Out of a Mountain II</u>. Prepared for THBA. REIC, Renova, RIS. 1984, <u>Making a Molehill Out of a Mountain</u>. Prepared for THBA.</p>

EVALUATION:

Reasons for Success/Lessons Learned:

(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)

- "House Strip" and pilot projects demonstrated that there is significant public interest in the purchase of good used building materials and products.
- A reusable item has potential only when directly connected with an end market;
- Bulk bins act as enormous "magnets", attracting wastes (mattresses, tree limbs, bicycles etc.) from surrounding neighbours who might normally never illegally dump their junk elsewhere. Careful on-site management is therefore essential;
- **Renovators** were surprisingly enthusiastic about pilot projects, for reasons ranging from broad environmental concerns to purely pragmatic economics. Many admitted they had simply not given enough thought to construction waste management in the past. Rising environmental consciousness, rapidly increasing tipping fees and "zero-tolerance" at landfill sites are changing these attitudes.
- **Homeowners** were similarly pleased to be doing their part environmentally. However, they were sometimes concerned with the appearance, extent or duration of piled up materials in their yards.
- **Commercial owners** are faced with constraints on timing, budget and convenience which often force them to take a less progressive approach to waste management. The potential yield from such renovations is usually significant and largely untapped, but requires larger firms with more resources to successfully implement recovery.

EVALUATION:	
Reasons for Success/Lessons Learned:	<ul style="list-style-type: none"> · Sub-trades are usually more difficult to manage (separating rather than throwing in one pile, avoiding contamination, maintaining tidy appearance, etc.) than the general contractors own staff. From a recycling viewpoint, the fewer different companies/management structures on-site, the easier the coordination and cooperation. · Waste haulers are concerned with unclear or inconsistently enforced landfill regulations/bans, scale of operations (fragmentation of building sites and destinations, small loads), location of source separation (may prefer mixed loads, separate in their own yards), and availability of markets. The relationship/coordination between hauler and general contractor would benefit from further study.
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land) (2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <p>Visual: If bulk bins are not used when source separating on-site, extra care must be taken by all staff to keep debris piled neatly on site, to ease the concern of owners and neighbours.</p>
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <p>Fully applicable; this is a GTA program.</p>

CASE STUDY:	MBS: GREEN WORKPLACE
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) 1. Entire Province 2. All Settings
Ownership/Financing:	(Municipal/Private/Not for Profit) Management Board Secretariat (MBS) is a provincial government agency, formerly called the Ministry of Government Services (MGS). MBS is the provincial government's real estate developer, builder and property manager; office supplier; telecommunications, photocopy, and computer supplier; official printer; etc.
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) Institutional, with links to other sectors. Primary purpose of Green Workplace is to integrate the 3Rs of waste management, energy and water conservation, environmentally-sensitive purchasing and building specifications, and air quality and hazardous materials management into government's day-to-day operations. In addition, the program seeks to actively promote these objectives in all sectors through its participation in the Build Green public/private sector partnership (see GTHBA/ORTECH Build Green case study).
Category of 3Rs:	(Reduce/Reuse/Recycle) All.

CASE STUDY:	MBS: GREEN WORKPLACE
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <p>Source Separation, Stewardship, Promotional/Educational</p> <ul style="list-style-type: none"> · Recycling. Source separation is carried out in almost 800 buildings for such products as paper, bottles, cans, polystyrene, newspapers, toner cartridges, telephone books, etc. Reduction has already exceeded 50%, well ahead of target, and a new standard, "Max Green" (75% overall, may vary from building-to-building), is being tested in several pilot buildings. · Composting. Demonstration sites were initially set up at 7 residential institutions and facilities such as correctional facilities, and psychiatric hospitals where food can account for up to 70% of waste. This has since been expanded to 30 sites. A range of methods are being tested including backyard, vermicomposting, windrow, aerated static pile and in-vessel. A demonstration of composting for a small community is planned for summer 1993 at the Science Centre. · Energy Management. A major energy retrofit program to install energy efficient lighting and mechanical equipment has been announced for government-owned buildings. This program will improve the energy efficiency of government buildings by 20% and save \$20 million annually in energy bills. The investment of \$80-100 million for retrofitting will be financed by the private sector and recovered from energy savings over 5 years. · Water Conservation. Low-flow plumbing fixtures were tested in 5 government owned buildings. Two xeriscape (water conserving) gardens were established to demonstrate this approach to gardening, both to the public and to landscape professionals. · Procurement. Environmental Choice Guidelines are mandatory minimum standards for purchasing. Government tenders over \$10,000 must contain environmental specifications. Particular attention has been paid to developing environmental specifications for high volume purchases such as garbage bags, toner cartridges, systems furniture, fax machines and instant printing. There are 3Rs standards for fine paper, vehicle lubricating oil (must be re-refined), paints and lamps and packaging. The Office Products Centre carries 100 environmentally friendly products.

CASE STUDY:	MBS: GREEN WORKPLACE
Type/Method (Contd):	<p>· Procurement (contd). MGS is a member of the Build Green public/private sector partnership which has been formed to close the recycling loop. The partnership is bringing together retailers, distributors, manufacturers and buyers so that when a manufacturer is considering going into production with a recycled content product, it can be assured that the product already meets government performance specifications; has an identified market; will be stocked by distributors (wholesalers); will be stocked by retailers so that the public (builders, renovators and do-it-yourself) can also buy the product; has been promoted through the Green Label advertising campaign, etc.</p> <p>The Build Green Resource Centre, located in the Ferguson Block, has a permanent display of building materials which incorporate recycled products, and a computerized data base to support the specification of environmentally friendly building materials.</p> <p>The Build Green Labelling Program will charge a small licensing fee for the Build Green Logo, and use the proceeds to administer the program, register products, and promote the program with the Build Green logo, Build Green flags, home show displays and newspaper advertisements.</p> <p>· The Greening Fund. Has funded individual ministries in pilot projects involving water efficiency, reducing paper waste and composting, and public/private partnerships such as the Build Green Program. In its next phase, it will be used to link up in partnerships with standards setting organizations such as the CSA, Ministry of Energy, Mines & Resources and NRC.</p> <p>· Green Dream Home, Build Green Street, Build Green Curriculum. MGS is a participant in these initiatives with the Ontario public/private partnership (see GTHBA/ORTECH case study).</p> <p>· Reuse. Reuse of furniture and office equipment is now routine before buying new. Reuse also takes place through the Blue Box program with such products as printer toner cartridges.</p>

CASE STUDY:	MBS: GREEN WORKPLACE
History/Progress:	(Approval Date, Start-up Date, Years of Operation) Established Waste Management Unit - 1989. Expanded to Green Workplace - 1991.
Government Involvement	<p>(Voluntary/Incentives/Bylaws)</p> <ul style="list-style-type: none"> · MBS implements its own 3Rs diversion activities as a matter of provincial policy and secures its 3Rs standards from suppliers and contractors on a voluntary basis except for Environmental Choice guidelines, which are mandatory minimum standards. Underlying the voluntary approach, however, are the dual incentives for manufacturers to avoid government regulation and gain access to a very significant market. · MBS is also exploring various incentive schemes to encourage manufacturers who meet Build Green specifications, such as single sourcing, and change orders (which would enable MGS to require a successful bidder to re-tender on a specific building material, if after the time of contract signing, a more environmentally friendly material came on the market). · For the Ontario Government Relocation Program (OGRP), MBS has prepared tendering guidelines which will require bidders to meet or exceed MBS minimum standards for energy conservation, indoor air quality, water conservation, hazardous materials and 3Rs and waste reduction. All such features will have to be clearly documented. On some projects, proponents may be requested to include selected environmentally friendly products, systems or methodologies, the cost of which does not have to be included in the bid price. These requirements will be clarified at a mandatory bidders information meeting to be held after the RFP is issued.
Potential Participants:	(Population/Households/Employees/Enterprises)
Targeted Participation:	(Population/Households/Employees/Enterprises)

CASE STUDY:	MBS: GREEN WORKPLACE
Actual Participation:	(Population/Households/Employees/Enterprises) Green Workplace: More than 87,000 government employees in almost 800 buildings.
Potential Capture/Diversion:	(Tonnes-Tons/Annum) Average government office employee produces 1 kg waste/day, or 251 kg (551 lb)/year, of which 80% is paper (1989 audit).
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) Original objective was to reduce 1989 levels of waste in government workplaces by 25% by end of 1992, and 50% by the year 2000. In 1991, 25% target was exceeded, resulting in more ambitious goal of 35% by 1992 and 50% by 1995. Since the 1995 target was met by 1992, a new target, "Max Green", is being initiated in several pilot buildings to reduce the balance, within three months, by an additional 50% (i.e. a building already at 50% diversion will have an increased target of 75% reduction, a building at 90% would go to 95%, etc.).
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) Over 50% diversion (exceeds province-wide 1992 and year 2000 targets). In some buildings, over 96%.
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted) Saved \$770,000 in past year by recycling 7,700 tonnes of material and diverting it from landfill.

CASE STUDY:	MBS: GREEN WORKPLACE
Documentation and Attitude/Behavioral Surveys:	<p>(1. Contact Person, Address, Phone) Mr. Craig Crawford Green Workplace Program Management Board Secretariat 900 Bay Street, Room M2-59, MacDonald Block Toronto, Ontario M7A 1N3 Tel: (416) 327-4192 Fax: (416) 327-4193</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) Ontario, MBS, Realty Group, Project Management Branch, 1993, <u>Request for Information (#098M), Design Build Proponents: Ontario Government Relocation Program</u>. February 12. Ontario, MBS, Realty Group, Project Management Branch, 1993, <u>Environmentally Conscious Design Requirements for Ontario Government Relocation Program: Design Build Projects</u>. March.</p>

EVALUATION:	
Reasons for Success/Lessons Learned:	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <ul style="list-style-type: none">· The Green workplace has been extremely successful in achieving its goal of establishing a multi-faceted program with the widest possible range of 3Rs coverage.· The office diversion program has been an outstanding success, surpassing provincial targets by many years.· It is still too early to evaluate most of the program's other initiatives, which are either relatively new or have a longer time horizon. For example, enough manufacturers have signed letters of intent so that the Build Green Labelling Program can be launched in the near future, but it will take some time before there are measurable results.· While reduction is the ultimate goal, MBS finds that a combined approach to the 3Rs is the most effective. For example, by replacing permanent partitions with modular furniture/partition systems containing recycled material, there is reduction of walls, reuse of partitions and furniture, and recycling of materials.· The Canadian/Ontario public/private partnership approach, which is almost entirely voluntary, is an interesting contrast to the German Ordinance-backed approach (see Green Dot/DSD case study) and the US Executive Order approach of mandatory recycled content for federally funded projects.

EVALUATION:	
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)</p> <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <ul style="list-style-type: none"> · The energy management & water conservation programs will have beneficial impacts on the environment through reduction. · The indoor air quality and hazardous and harmful materials programs will improve the workplace environment for government employees. · As a major force in the market, MBS must be sensitive to the fact that in a difficult economic climate, reduction is perceived as a threat to jobs in packaging and related industries. To minimize this perceived impact, recycling and reuse are being promoted in combination with reduction. · Even though diversion is obviously less convenient than waste, the program has been enthusiastically supported by government staff.
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <p>Fully applicable.</p>

CASE STUDY:	General Motors of Canada Ltd. (GMCL) Oshawa Autoplex Facility
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) Oshawa, Durham County
Ownership/Financing:	(Municipal/Private/Not for Profit) Private Corporation - Publicly Owned Shares
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) Industrial
Category of 3Rs:	(Reduce/Reuse/Recycle) All three Rs.

CASE STUDY:	General Motors of Canada Ltd. (GMCL) Oshawa Autoplex Facility
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <ol style="list-style-type: none"> 1. Lineside Waste Segregation and Collection Systems 2. Returnable Container Programs 3. Recycling Programs 4. Waste Sorting Facilities - MRF 5. Energy from waste facility <p>Materials: Returnable Containers, Recyclable Cardboard Corner Supports to replace wood, Molded Paper Dunnage to replace plastic foam, Miscellaneous Metal, fine paper, newspaper, plastic, etc.</p> <p>Waste Sorting Facility processes 65 tons/day.</p> <p>After reducing incoming quantities of packaging, reusing containers, and recycling, any remaining burnable residues are processed at the on-site Energy From Waste Facility. Energy recovery produces 30,000 pounds of steam/hour to augment powerhouse steam generation.</p> <p>(Promotion/Education) Video and Waste Reduction Guidebooks have been produced.</p>
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation)</p> <p>Had been involved in some waste management activities prior to 1988 (scrap metal and cardboard). A comprehensive waste management program began in late 1988 as a result of landfill bans on some materials.</p>
Government Involvement:	<p>(Voluntary/Incentives/Bylaws)</p> <p>By-laws on banning some materials from landfills forced greater waste diversion, but at a significant financial cost and often markets were not ready for the quantity of materials diverted.</p>

CASE STUDY:	General Motors of Canada Ltd. (GMCL) Oshawa Autoplex Facility
Maximum Potential Participants:	(Population/Households/Employees/Enterprises) The autoplex is comprised of six plants that are located on a 640 acre site. These six plants include: Chevrolet Lumina, Buick Regals, Light Duty Trucks, Batteries, Radiators and Rear Axle Assemblies.
Targeted Participation:	(Population/Households/Employees/Enterprises) Solid waste management is targeted to all six plants and through employee education programs.
Actual Participation:	(Population/Households/Employees/Enterprises) Majority of all employees participate in at least some waste management activities. A particular employee's involvement will be determined by his/her department and employment position.
Maximum Potential Capture/Diversion:	(Tonnes-Tons/Annum) Approximately 18,000+ tonnes/year
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) While there are no specific targets for total waste diversion, the objective is to divert as much waste as is financially and operationally feasible. It is foreseeable that over the next few years diversion could increase from 36% to 65%, including recovery.

CASE STUDY:	General Motors of Canada Ltd. (GMCL) Oshawa Autoplex Facility
Actual Capture/Diversion Rate:	<p>(Percentage or Tonnes-Tons/Annum)</p> <p>Waste management activities have resulted in a 40-42% reduction of waste to landfill. An additional, one-third of the waste is recovered as energy for steam requirements. The remaining third of waste is landfilled.</p> <p>Cardboard represents 80% - 90% of the recycled waste. Metal, Fine Paper, Newspaper, Steel, and Wood are also significant.</p> <p>A certain percentage of waste (5%-15%) will be extremely difficult to recycle for reasons such as lack of feasible recycling technology, extraordinary cost, or complex materials (e.g. broken windshields). One GMCL plant, not in Oshawa, has achieved 68% overall diversion.</p>
Cost:	<p>(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted)</p> <p>Specific figures were not provided. However, the waste management activities have been costly, due to the short time periods allowed for implementation. Even at current tipping fees, which have increased many fold since 1988, it is not profitable to recycle many materials for lack of markets and significant handling costs. The waste management program required an additional 30-40 employees.</p>

CASE STUDY:	General Motors of Canada Ltd. (GMCL) Oshawa Autoplex Facility
Documentation and Attitude/Behavioral Surveys:	<p>(1. Contact Person, Address, Phone) Mr. Bruce Reid Director, Office of the Environment General Motors of Canada Ltd. 1908 Colonel Sam Drive Oshawa, Ontario L1H 8P7 Phone: (416) 644-7936 Fax: 644-7721</p> <p>Mr. Doug Sirrs Environmental Engineer Central Plant Engineering (Address as above) Phone: (416) 644-7288 Fax: 644-5887</p> <p>The majority of information for this case study came from a meeting between Mr. Reid, Mr. Sirrs and Mr. Shantz of HSA. The article referenced below provided some of the background factual information on solid waste management at GMCL.</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) Argonaut AEC - Waste Management Services, 1991, "GM of Canada Reduces Dependence on Local Landfills." <u>WasteWatch</u>. Summer.</p>

EVALUATION:

Reasons for Success/Lessons Learned:

(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)

- Regulations such as landfill bans that have been imposed within a short-time frame have caused financial and operational problems. A longer time-frame of progressive reductions is important.
- A longer time-frame for implementation allows for the 3Rs to be considered as part of overall corporate strategy and then becomes a normal part of doing business. It also allows time to develop strategic alliances or joint ventures with suppliers (e.g. returnable packaging) and waste haulers to work on the 3Rs. It also allows more time to deal with materials like plastics that have non-existent or poorly developed markets.
- Sharing of information at the association level amongst similar industries is useful to identify key methods and technologies to deal with the waste problem (particularly in long-term vehicle design issues).
- The growing environmental awareness of employees and management, through programs such as the Blue Box, is a critical factor for implementation and for the generation of new ideas. Education programs and 2-way communication between management and staff are important.
- GM representatives thought that tipping fees should reflect the actual planning, operating, capital, and remedial costs of landfills, in order to help identify the most cost-effective methods. Currently, they are viewed as an arbitrary figure.
- While there exists no analysis on the relative competitiveness of jurisdictions with different regulations in waste management, GMCL representatives recognize that there exists the potential for competitive disadvantage imposed by arbitrarily high tipping fees. Another problem occurs when industry is not consulted on the regulations and they are implemented without attention to the time-frames of industry. If consultation was up front, periodic, and based on solid scientific evidence, there would be increased participation.

EVALUATION:	
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)</p> <p>· The operational effects of rapid regulation, such as landfill bans are significant. The plants were not originally designed with available areas for waste processing, consequently when landfill bans were implemented, this presented challenges in accomplishing the program in a safe and efficient manner.</p>

EVALUATION:	
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <ul style="list-style-type: none">· While any waste management strategy needs to be designed to the unique needs of each corporation and its material waste, there are many identifiable aspects of waste management at GM that would represent the interests of, and be applicable to, other companies.· Regulations imposed without adequate analysis of their potential for impact and without the involvement of all stakeholders will be costly and negatively affect competitiveness.· Waste management and "greening" of companies will be most effective when upper management is aware of, and involves itself with these issues and they become part of the overall corporate philosophy. This is most likely to happen where industry is regularly consulted by government, there is a uniformity in regulation at different levels of government, and where the regulation will clearly benefit the environment.· Growing societal awareness of environmental issues is important in generating enthusiasm amongst all levels of employees with regards to waste management.· GM representatives would like to see an even playing field in the setting of waste diversion targets. If targets are to be set, there should be an acceptable base year that goes far enough back to not penalize those companies that have been involved in waste management for many years.

CASE STUDY:	LOBLAWS LTD - RETAIL GROCERY SECTOR
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) 34 stores located in the GTA
Ownership/Financing:	(Municipal/Private/Not for Profit) Loblaws Supermarkets Ltd. is a division of National Grocers C. Ltd. and under the umbrella of Loblaws Companies Limited
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) Commercial Retail Chain
Category of 3Rs:	(Reduce/Reuse/Recycle) All three Rs

CASE STUDY:	LOBLAWS LTD - RETAIL GROCERY SECTOR
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational)</p> <p>Loblaws has a comprehensive waste management strategy that recycles and reuses the majority of it's materials. The program is implemented according to the specific circumstances of each retail store.</p> <p>The following are the key programs.</p> <ol style="list-style-type: none"> 1. Cardboard Recycling (approximately 50% of total waste) 2. Produce/Bakery to compost or farms for animal feed 3. Grease - recycled and used for topsoil 4. Meat rendering 5. Wood and Wax - compacted and sent to Ajax Steam Energy Incineration Plant. Studying the practicality of composting the wood and wax. 6. Plastic Shrink Wrap - recycled 7. Cafeteria type waste (pop cans, newspapers, etc.) - Blue Box 8. Pallets - reused and repaired, unusable wood waste is chipped 9. Other - Milk Crates reused, Pop Holders reused, plastic breadtrays, tote boxes, cotton string reused, refillable bottles. <p>Much of the waste that is not recycled is unsuitable for recycling (broken materials, floor sweepings, blood stained plastic, cafeteria waste)</p> <p>(Promotion/Education)</p> <p>Training of employees has been a key part of the program. The head office and individual recycling and waste haulage companies provide consulting, supervisory, and training functions.</p>

CASE STUDY:	LOBLAWS LTD - RETAIL GROCERY SECTOR
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation) Recycling of cardboard and meat, began in the 1970s, motivated by cost-savings. 1990/1991 - Loblaws implemented a much more extensive waste management and environmental program. Commitment to the environment, potential economic savings, and regulations (eg. landfill bans) were significant motivations.</p>
Government Involvement:	<p>(Voluntary/Incentives/Bylaws) There has been no government involvement in the Loblaws waste management program. Landfill bans forced recycling of some materials. Increases in tipping fees made recycling of some materials more financially feasible.</p>
Maximum Potential Participants:	<p>(Population/Households/Employees/Enterprises) 34 Stores</p>
Targeted Participation:	<p>(Population/Households/Employees/Enterprises) All stores and employees.</p>
Actual Participation:	<p>(Population/Households/Employees/Enterprises) Virtually all employees participate in at least some waste management activities. A particular employee's involvement will be determined by his/her department and employment position.</p>
Maximum Potential Capture/Diversion:	<p>(Tonnes-Tons/Annum) There are no specific tonnage figures for the 34 Loblaws stores.</p>
Target Capture/Diversion Rate:	<p>(Percentage or Tonnes-Tons/Annum) While there are no specific targets for total waste diversion, the objective is to divert as much waste as is financially and operationally feasible.</p>

CASE STUDY:	LOBLAWS LTD - RETAIL GROCERY SECTOR
Actual Capture/Diversion Rate:	<p>(Percentage or Tonnes-Tons/Annum)</p> <p>While the % diversion varies from store to store; overall Loblaws recycles 80% - 85% of its waste. Some of the remaining waste is unrecyclable. Occasionally not everything is recycled due to problems such as staff turnover.</p>
Cost:	<p>(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted)</p> <p>Costs vary according to the store, but overall there has been a positive return on investment. The most significant cost is associated with equipment such as vertical compactors and bailers. No employees were added for the waste management program.</p>
Documentation and Attitude/Behavioral Surveys:	<p>(1. Contact Person, Address, Phone)</p> <p>Ken Mulhall Manager, Environmental Affairs Corporate Development National Grocers Co. Ltd. 6 Monogram Place Weston, Ontario M9R 4C4 Phone: 240-3211 Fax: 240-3214</p> <p>(2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys)</p>

EVALUATION:	
Reasons for Success/Lessons Learned:	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <p>Six factors have made the waste management program successful: (1) Proper attitude and dedication by employees, (2) Dedication by senior management to being a good corporate citizen, (3) Proper education and training, (4) Genuine ethical concern for the environment, (5) Economic savings, and (6) Positive relationship between labour and management.</p> <p>Overall, an effective 3Rs program helps company competitiveness.</p> <p>Strong commitment to meet all recycling targets, NAPP targets, etc.</p> <p>In the future, efforts will be focused on stores outside of the GTA, to determine if increased recycling efforts are practical and economical.</p>

EVALUATION:	
Potential Social Effects:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land) A lack of space has been a problem in some of the stores. Hygiene and odour issues are handled by cleaning the recycling containers by hoses that are located on the waste haulage trucks.</p> <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life) The waste management strategy has dealt with any safety problems arising out of storage of the materials. Change of waste haulage containers. No labour problems were identified with the implementation of the program.</p> <p>There are significant concerns associated with the potential regulation that would lead to an expansion of beverage container re-fill at food retail stores. These concerns include: health by contamination and infestation, safety (broken glass), sorting processes for three different types of containers, lack of space, increased labour cost, increased cost handling that will affect the price to the customer, potential for increased cross border shopping, and high losses each year with missing bottles. This regulation may also lead to the elimination of cans and P.E.T. bottles from the Blue Box, depriving local municipalities and OMMRI of significant sources of recycling revenue. Finally, there is an equity concern that the regulation would only apply to larger retail stores and not drug stores, warehouse stores, gas stations, etc.</p>

EVALUATION:	
Replicability in the GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <p>The Manager of Environmental Affairs believes that the waste management success of Loblaws is very applicable to other grocery chains. However, all stores will need to develop programs to their unique circumstances. Smaller and older stores will have a more difficult time due to a lack of space for materials and equipment.</p> <p>Ongoing communication and consultation between government and industry is very important.</p> <p>Loblaws prefers guidelines and set targets (eg. NAPP agreement - % target) to regulations for industry waste management. Loblaws will abide by all established regulations concerning waste management.</p>

CASE STUDY:	IC&I Sector - Institutional: Sunnybrook Hospital
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) North York, Ontario
Owner-ship/Financing/Management:	(Municipal/Private/Not for Profit) Solid waste management is supervised by the Environmental Services Department which is a contracted waste management company.
Sector/Purpose:	(Residential/Institutional/Commercial/Industrial) Institutional: Multi-Purpose Hospital
Category of 3Rs:	(Reduce/Reuse/Recycle) All 3Rs.
Type/Method:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational) Targeted Materials for Recycling: all paper except tissue/toilet, pop cans, corrugated cardboard, plastic, glass, diapers, IV Bags. Re-use programs - catering services, paper The wide variety of plastics are the most problematic.</p> <p>95% of the Bio-medical waste is treated in a sterilizer that eliminates any hazards and is landfilled. Sharps (eg. needles), chemo-therapy wastes, and pathological wastes are sent to the incinerator. Chemical waste is picked up three times a year by the chemical division of Laidlaw Waste Management Inc.</p> <p>(Promotion/Education) Education about the three Rs is critical to the program. General education material is included in newsletters, etc. Specific programs for each specific unit (department).</p>

CASE STUDY:	IC&I Sector - Institutional: Sunnybrook Hospital
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation) 1989, Initiated by Director of Public Affairs on direction of the Vice President of Diagnostic Services. The program became established primarily as a result of employee interest and enthusiasm to get involved. Subsequently, the hospital developed an environmental code of practice. Since 1991 the environmental services program has been contracted out to a waste management company.</p> <p>The hospital serves as a case study for other Ontario hospitals. It is the most developed in length of operation, design, etc. in Ontario. Recycling planning is done in coordination with eleven other regional hospitals in Ontario (making a code of practice for all Toronto Area Hospitals).</p>
Government Involvement:	<p>(Voluntary/Incentives/Bylaws) Government involvement is primarily restricted to approvals for the management of bio-medical and hazardous waste. The hospital received an MOEE certificate of approval to install and use its sterilizer which handles bio-medical waste.</p>
Maximum Potential Participants:	<p>(Population/Households/Employees/Enterprises) 4,000 Employees 1,500 Bed Spaces 5,000 Patients/Day (including visits to Doctors offices)</p>
Targeted Participation:	<p>(Population/Households/Employees/Enterprises) Entire hospital. All staff, patients, and guests.</p>
Actual Participation:	<p>(Population/Households/Employees/Enterprises) Extended to the entire hospital.</p>
Maximum Potential Capture/Diversion:	<p>(Tonnes-Tons/Annum) Unavailable</p>
Target Capture/Diversion Rate:	<p>(Percentage or Tonnes-Tons/Annum) 50% by the end of 1993.</p>

CASE STUDY:	IC&I Sector - Institutional: Sunnybrook Hospital
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) Achieving 33%-36% overall diversion (593 tonnes without sani-paks). Diapers (52 tonnes), Paper (240), Plastic (6 tonnes), Glass (3 tonnes), Cans (10 tonnes), Cardboard (126 tonnes). Sanipaks (395) and Food (156) waiting government approval.
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted) 3Rs have been cost neutral. In North York institutions have to pay for 3Rs pick-up. If there was no cost in this, the program would produce a net savings.
Documentation and Attitude/Behavioral Surveys:	(1. Contact Person, Address, Phone) Mary Martin, Recycling Co-ordinator Environmental Services Sunnybrook Hospital 2075 Bayview Ave. North York, Ontario M4N 3M5 Phone: (416) 480-4555 Fax: (416) 480-6100 Ext.#6891 Environmental Services is contracted out to John Crothall Hospital Services Ltd. (2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) Resource Integration Systems Ltd., 1991, <u>Characterization of ICI Recycling in Ontario</u> . OMMRI.

EVALUATION:	
Reasons for Success/Lessons Learned:	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <p>3Rs program received overwhelming support from staff. Staff wanted to do something. There was enthusiasm quicker than the programs could be implemented. Environmental services staff think it is critical to implement the waste management program; one unit (department) at a time, developing the program to the unique needs of each department.</p> <p>The Environmental Services was contracted out to bring innovation into the department as well as savings, knowledge and a new management style.</p>
Potential Effects:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land)</p> <p>The key effect was the lack of space for the storage of recyclables. Currently, the institution receives collection three times per week, but it is not sufficient. The private waste hauler, Universal Disposal will increase its service.</p> <p>(2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <p>A solid waste management section has been established and employs 5 full-time staff and 3 weekend staff. Waste management used to be under the direction of Occupational Health & Safety with 8.7 full-time employees. The contracting out of this section has reduced staff and improved waste management operations.</p> <p>3Rs tasks have become part of everyone's job, but has primarily affected the housekeeping staff. Unionized staff were co-operative.</p> <p>There are no liability issues associated with the program. There are no identified health concerns with the program.</p>

EVALUATION:	
Replicability in the GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <p>The experience of Sunnybrook in solid waste management is thought to be replicable in other hospitals. Joining the enthusiasm of staff with a good waste management strategy to implement the program is critical.</p>

CASE STUDY:	GREEN DOT - DUALES SYSTEM DEUTSCHLAND (DSD)
DESCRIPTION:	
Location:	(1. Name: City/Town & Region/County. 2. Setting: Urban/Low Density/Rural) 1. Germany, 2. Entire country
Ownership/Financing:	(Municipal/Private/Not for Profit) Ownership and administration of DSD by private sector. Collection by private or public haulers. Current collection strategy has moved toward partnerships between DSD and municipal collectors, a modification of original intent to operate a "dual" system. Sorting by private sector. The administrative costs of the DSD system are obtained through by a licensing fee for use of the Green Dot symbol. The capital and operating costs of collecting and sorting will be financed by private industry and recovered in the price of the product.
Market/Purpose:	(Residential/Institutional/Commercial/Industrial) DSD is an exemption scheme covering packaging in all sectors (excluding packaging for hazardous or toxic materials). A federal ordinance requires that consumers must return packaging to the point of sale, which must then be collected by manufacturers and recycled. If packaging bears a Green Dot, consumers are exempted from point of sale returns and can dispose of it much more conveniently in local depots or curbside yellow bins/bags.

CASE STUDY:	GREEN DOT - DUALES SYSTEM DEUTSCHLAND (DSD)
Method/Type:	<p>(Source/Wet-Dry/Mixed/Stewardship/Financial/Educational.)</p> <p>2 Stream Collection: Sorted glass bottles and mixed paper to depots ("igloos"), target: 1 depot/500 residents, other mixed packaging to curbside yellow bin/bag. Collection will go to 200 MRFs (60 already established), and sorted materials distributed to manufacturers for recycling and integration into production process.</p> <p>· Stewardship: DSD guarantees government and participating manufacturers that packaging will be recycled. Manufacturers, in addition to paying the licensing fee, must also obtain a guarantee from the recycling companies that its specific packaging material is recyclable or reusable, which contributes to rationalization of packaging/containers. DSD collects, sorts and redistributes recyclable materials to manufacturers at zero cost. Demand for recyclables is thus guaranteed and products using zero cost recycled material have a significant cost advantage. Since retailers must provide in-store bins for packaging to be collected by non-participating manufacturers, and are strongly opposed to this, they are very likely to be discouraged from carrying any products which do not bear the Green Dot symbol.</p> <p>· Education/Promotion: DM50 million (\$41.6 million) allocated to public education, including TV radio, newsletter, information kiosk and door to door.</p>
Category of 3Rs:	(Reduce/Reuse/Recycle) All

CASE STUDY:	GREEN DOT - DUALES SYSTEM DEUTSCHLAND (DSD)
History/Progress:	<p>(Approval Date, Start-up Date, Years of Operation)</p> <ul style="list-style-type: none"> · December 1991 - Phase 1 went into effect, requiring transportation packaging (crates, cartons, pallets) used to deliver goods to retailers to be returned to manufacturer for reuse or recycling; · April 1992 - Phase 2 went into effect, allowing consumers to leave shelf packaging and display packaging (boxes containing bottles, bags or tubes, blister packs) in stores; · January 1993 - Phase 3 will come into effect, requiring retailers to take back primary product packaging (bottle, bag, box or tube containing product) or participate in DSD.
Government Involvement:	<p>(Voluntary/Incentives/Bylaws)</p> <ul style="list-style-type: none"> · Voluntary: DSD managed by private sector. System is self-regulating and can choose between 3Rs, subject to achieving government diversion targets and special provisions to protect reuse of beverage containers i.e. market share cannot drop below current level. · Incentive: Self-regulation; if targets not met, government will impose mandatory deposit system. · Ordinance: Mandates 3 phases described above, affecting primary (bottle, box, bag, tube containing product), secondary (shelf displays, blister packs, box containing bottle or tube) and transportation (crates, cartons, pallets). Imports also have to comply. Ordinance specifically prohibits incineration of packaging materials to encourage recycling.
Potential Participation:	<p>(Population/Households/Employees/Enterprises)</p> <p>All, including imports.</p>
Targeted Participation:	<p>(Population/Households/Employees/Enterprises)</p> <p>All, including imports.</p>
Actual Participation:	<p>(Population/Households/Employees/Enterprises)</p> <p>See preliminary capture/diversion statistics below.</p>
Potential Capture/Diversion:	<p>(Tonnes-Tons/Annum)</p> <p>Assumed municipal costs can be lowered by 25%, which is estimated share of packaging in waste stream.</p>

CASE STUDY:	GREEN DOT - DUALES SYSTEM DEUTSCHLAND (DSD)
Target Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) · Reuse of Beverage Containers: 72%, proposed to increase to 81% by year 2000 (NB: trend is to phase out glass in favour of refillable plastics). · Packaging Collection Quotas: July 1995, % by weight, for aluminum, composites, glass, paper, paperboard/cardboard, plastic, tin - 80% (currently varies from 20%-60%). · Packaging Sorting Quotas: July 1995, % by weight, for same materials - 80%-90% (currently varies from 30-70%)
Actual Capture/Diversion Rate:	(Percentage or Tonnes-Tons/Annum) Municipalities that have already provided DSD collection for retail packaging have experienced up to 14% reduction in waste to landfill in first year.
Cost:	(\$/Participating Pop/Hhld/Employee/Enterprise and \$/Tonne-Ton Diverted) Difficult to determine net cost since the system includes providing manufacturing inputs at zero cost. Anticipated start-up costs DM6 billion (\$5 billion), anticipated annual cost DM1.2 billion (\$1 billion), likely increase in overall consumer prices an average of 0.5%.
Documentation:	(1. Contact Person, Address, Phone) Maria Kelleher Resource Integration Systems Ltd. Toronto, Ontario (2. Available Reports, Market Analysis, Attitudinal Surveys & Participation Surveys) Von Roeder, Bille, 1992, <u>Trade Implications of the International Packaging Initiatives: Focus on the German Packaging Ordinance and Dual System</u> . Recycling Development Corporation Paper delivered to Recycling Council of Ontario, 13th Annual Conference, Ottawa, Ontario, October 9. Baker, Neil, ND, <u>Perspectives on Packaging</u> . Region of Peel. Paper (obtained from Recycling Development Corporation). Redd, Adrienne, 1992, "Germany Recycles Packaging Material." <u>Waste Age</u> . January.

EVALUATION:	
Reasons for Success/Lessons Learned:	<p>(Complexity/Cost/Time/Operations/Support/Quantities/Attitudes)</p> <p>Key Factors:</p> <ul style="list-style-type: none"> · DSD guarantees financing; rationalization of materials and containers; markets; firm regulatory environment; and level playing field. · DSD builds true costs of waste management into price of product, encouraging 3Rs. · DSD encourages innovative solutions, reduction of excess material and combinations of different materials. <p>Successes:</p> <ul style="list-style-type: none"> · Dramatic reduction - to almost nothing - of materials difficult to recover/recycle (blister packs, PVC, aluminum, polystyrene, laminates). For example, blister packs have virtually disappeared. Corresponding increase of easily recovered/recycled materials (paper, recycled paper, polyethylene, polypropylene). · Examples of cost reduction: Manufacturing costs of paper in Germany have gone down by 15%, putting British manufacturers at an extreme competitive disadvantage. Similarly situation with respect to plastic film manufactured in Britain. <p>Lessons:</p> <ul style="list-style-type: none"> · Plastics industry seeking abatements, although government holding firm. · DSD currently facing legal challenges, both within Germany and by EEC partners claiming protectionism (importers have smaller market share than domestic manufacturers, does not justify meeting German packaging standards) and in violation of anti-trust laws (requires industry wide agreement on packaging, also, above de facto exclusion of importers will concentrate large German manufacturers). · Some concerns that DSD approach will have a greater effect on recycling than reduction or reuse.

EVALUATION:	
Potential Social Impacts:	<p>(1. Nuisance: Noise/Odour/Litter/Visual/Traffic/Vermin/Pollution of Air, Water or Land) (2. Health/Safety/Employment/Sourcing/Property Value/Convenience/Quality of Life)</p> <ul style="list-style-type: none"> Trade: German government believes that 3RS are inevitable. By absorbing the cost now, it hopes to gain an international competitive advantage through: export of leading edge waste and packaging technology; preferential sales to purchasers with green specifications; and lower manufacturing and environmental costs. Employment/Sourcing: Future industrial employment protected by anticipated competitive advantage. Immediate effects include employment and construction associated with the current 60 MRFs and associated collection system, 1400 new permanent positions (assuming 10 employees/facility) that will be created by the remaining 140 MRFs to be built; associated construction budget of DM 560 million (\$466 million) or DM 4 million (\$3.3 million) each, and corresponding construction jobs; and employment attributed to future expansion of collection network.
Replicability in GTA:	<p>(Density/Building-Lot/Tenure/Stability/Volume/Composition/Markets/Attitudes)</p> <ul style="list-style-type: none"> Uncompromising legislative approach may not be easily transplanted outside Germany. Nevertheless, neighbouring EEC countries are being forced to respond with equivalent schemes to remain competitive (i.e. France, "Blue Dot - Eco-emballage").

SCHEDULE F

Selected Annotated Literature Review

SCHEDULE F:

SELECTED ANNOTATED LITERATURE REVIEW

The Annotated 3Rs Literature Review is presented under the following headings:

- (1) Composting (Backyard & Centralized): Programs, Attitudes, Behaviour Issues.
- (2) Health Effects (Composting)
- (3) Recycling Programs, Behaviours, Attitudes
- (4) Composting/MRF Siting
- (5) Waste Reduction: IC&I Programs, Behaviours, Attitudes
- (6) Waste Reduction: Residential/Municipal
- (7) Mandatory Enforcement of 3Rs Programs

1.0 Composting (Backyard & Centralized): Programs, Attitudes, Behaviour, Issues

Several studies conducted throughout the Greater Toronto Area have included survey work addressing householder behaviour and attitudes towards a number of municipal backyard composting programs. The findings of a number of these studies are summarized below. First, however, a review of these studies indicates that there are a number of common conclusions which can be drawn, and a number of public ideas, issues, and concerns which should be identified. These include:

- (1) Overall, the vast majority of respondents throughout the Greater Toronto Area report that backyard composting has been a positive and worthwhile experience. This activity is widely considered to have substantial potential as an area of waste diversion.
- (2) Curbside "wet waste" programs are seen as a key element in ensuring the success of composting. There is evidence that such a program would be utilized not only by existing backyard composters, but by those who have not yet engaged in this activity because it's too time consuming.
- (3) The "ease" of the program is seen as another key issue. Subsidized (and delivered) units, kitchen containers, and the provision of clear and concise informational material are all seen as important by the public.

- (4) The issue of whether or not the public would pay full retail price for the composting units is somewhat contradictory. However, there appears to be a sense that providing subsidized units may be critical in bringing inexperienced composters into the program, i.e., it's yet another example of making everything "easier."
- (5) The available evidence (e.g., Environics, 1990) indicates that respondents are split on whether municipal composting plants should be sited locally, outside the municipality or outside the region.
- (6) The major concern noted has to do with the capacity of the various units, i.e., they're too small. This is a very common complaint which needs to be addressed. Another fairly common concern (which accentuates the "nuisance factors") has to do with ill-fitting or insecure lids or doors. Other concerns (e.g., odour, insects, scavenging animals) are often considered a nuisance but not, by themselves, serious enough to deter people from composting.

Biocycle. Solid Waste Composting in the United States: 1992 Project Survey.
(Nov. & Dec.) 33, (11-12), 1992

This article surveys all 21 MSW composting facilities in the United States which were active at the end of 1992. It was noted that the number of facilities in operation had grown from 10 to 21 since 1990. The survey included only those facilities which take MSW from both residential and commercial sources. All but 2 of the facilities process a mixed stream.

The following issues and concerns were identified in this survey:

- State government (e.g., Arizona) concerns about volatile organic compounds (VOC's).
- Need to find reliable markets for the material (primarily plastics and metals) which is currently landfilled. Often, the problem has to do with the restrictions of neighbouring states. A number of facilities require marketing assistance.
- Contamination (primarily plastics and paper) in the compost. Many facilities are therefore experimenting with improved screening processes.

Such contamination (particularly plastics) has often resulted in additional sorting needs at the front end. In many cases, the contamination problems are greater than first anticipated.

- Odour complaints are a common problem. Often, the odour concerns somewhat constrain screening activities. Certain facilities (e.g., New Castle, Delaware) can screen only when the wind blows away from residential areas. Operators generally aware of the need to get more air into the piles and to use biofilters to ease the problem with gases.
- The hammermills (used to reduce the compost after it comes off the pad) require additional maintenance because of glass contamination (i.e., they wear down quickly).
- Wet weather and an unprepared site can make outdoor pile management difficult; a number of facilities have constructed roofed buildings.
- The compost from certain facilities (e.g., Minnesota) has received restricted designations because of higher than allowed levels of PCB's.

Compost Management Associates Ltd. (for Region of Durham). A Field Examination of the Cost Effectiveness, Waste Diversion Potential, and Homeowner Acceptance of Backyard Composting Units. Phase II: The Pickering Research. 1992.

This two-year study was designed to investigate backyard composting in a 1,130 home subdivision in Pickering, Ontario. This draft report reviews the first year results, and includes the results of a telephone survey conducted 13 months following the first round of composter distribution. In the end, 64 households were interviewed.

Among the study findings were:

- Most residents were reasonably pleased with the appearance and utility of the compost units (2 types distributed).
- Sixty-four percent of the households reported no problems with the installed composters. The most frequent complaint was that the composter filled too quickly, i.e., too small. Two homeowners reported a problem

with bees and raccoons were mentioned as the major animal problem, followed by squirrels and mice.

- Separating organic waste from other garbage did not appear to be a problem, although households are less enthusiastic about storing it before it is fed into the composter.
- Virtually all respondents see the need for some type of kitchen container to collect food waste. In fact, 34% of the respondents claimed they would not be composting food waste if a kitchen container had not been provided.
- There was very little previous experience with backyard composting (only 14%).
- There was a great deal of support (98%) for the program among the households interviewed. Respondents felt that the following factor was the key to ensuring the success of the program: free composters and kitchen containers, with door-to-door delivery. Respondents also noted that the provision of good instructional materials on composting was very important.
- The data on whether or not respondents would pay for composting units was somewhat contradictory. While many said they would pay \$21.00 for a unit -once they had the opportunity to evaluate it - it was by no means clear if people would pay the money up front upon delivery.
- Respondents also identified a need for: (1) a Master Composter Program; (2) a composting hotline; and, (3) a guide or newsletter for composters.

Compost Management Associates Ltd. (for Region of Durham). A Field Examination of the Cost-Effectiveness, Waste Diversion Potential, and Homeowner Acceptance of Three Different Backyard Composting Units. 1990.

The study evaluated three different types (Barrel, Soil Saver, Ecolyzer) of backyard composting units which were distributed to 60 selected homes in the Town of Newcastle from July to early September, 1989. There was an effort made to select a mix of urban and rural residents and to include those who had composting experience and those who had none. As part of the study, a telephone questionnaire was administered to a majority of each of the three survey groups.

Information about the performance of the composters was also gathered through the use of a one-page survey form provided to each participant. The form was filled out at the end of each month of participation.

Among the study findings were:

- Nearly all of the participants planned to continue using their composters. Each participant surveyed reported that they would recommend backyard composting to their neighbours.
- The vast majority of respondents were strongly supportive of the concept when asked, "What do you think about your composter and composting in general?"
- Even those who reported that the activity was an occasional nuisance, felt that they would continue because it was the responsible thing to do.
- The vast majority of respondents felt that the use of composters made a significant difference in the volume of waste generated by the household.
- One-third to one-half of the respondents reported that the presence of the composters tended to influence their buying habits to be more reflective of conserver values.
- A significant number of respondents reported that the experience had stimulated a greater interest in reading about environmental issues.

Dussault Jr., Allen J. An Example of State Encouragement. In The Biocycle Guide to Yard Waste Composting. Edited by the Staff of Biocycle. The J.G. Press Inc. Emmaus, Pennsylvania. 1989.

The author discusses ways in which the State of Massachusetts has assisted various municipalities to establish leaf and yard waste composting facilities. These include:

- A technical assistance program which consists of 3 main components: workshops on how to site, design and operate a municipal compost operation -followed by a demonstration at an existing facility which provides for contact with successful operators; packet of guidance materials on how to set up and run a leaf and yard waste composting facility; and,

field-work which includes site visits to prospective and operating facilities. The latter visits provide assistance to municipal officials in evaluating and selecting an appropriate compost site, ensuring regulatory compliance, reinforcing the benefits of composting over disposal and helping troubleshoot at problem facilities.

- Composting grants made available to municipalities.
- State easing of regulatory requirements for leaf and yard waste facilities, e.g., exempting municipal compost operations from solid waste facility designation.

Among the obstacles to municipal composting facilities, the following are noted:

- Apathy or disinterest on the part of some municipalities.
- Uncertainty by municipalities about the cost of initiating and operating a leaf compost operation.
- Some municipalities are bound by long-term disposal contracts with fixed costs regardless of the quantity delivered. There are therefore no economic incentives to divert leaf and yard waste from disposal.
- The invisibility of high disposal costs not paid directly by residents. There is therefore a lack of political pressure to reform waste management practices.

In order to overcome some of these problems, Massachusetts will be:

- Implementing a ban on the disposal of leaves in landfills and incinerators.
- Developing a cost-effectiveness work-sheet designed for municipal officials to address the problem of cost uncertainties surrounding leaf and yard waste composting.
- The State is pushing large commercial disposal facilities to set up leaf and yard composting systems to counter-act the problem of long-term waste contracts which offer no incentive for waste diversion.
- These initiatives to be supplemented with a backyard composting system.

Environics Research Group Ltd. (For the Solid Waste Interim Steering Committee). Public Attitudes Toward Waste Management: A Survey of Residents of the Greater Toronto Area. Final Report. 1990.

The survey was conducted of residents of the Greater Toronto Area (includes Metropolitan Toronto and the Regions of Durham, Halton, Peel and York) with regard to waste management issues. Two thousand residents were interviewed by phone in June and July, 1990.

The survey obtained the views of residents in the Greater Toronto Area in terms of their general priorities for waste management alternatives for their region, including their support and likely participation in "3R's" activities requiring direct public involvement. The survey considered eight themes: Waste Concerns, 3Rs, Blue Box Program, Composting, Regulations, Responsibility for Garbage Collection, Waste Facilities, and Waste Reduction in the Workplace.

Waste Management

Environmental concern related to waste management was the issue most residents raised when asked for "top-of-mind" (p.7) concerns. Most of those who mentioned waste management as the primary public issue, considered it a serious problem.

The 3Rs

Forty eight percent of those surveyed were aware of the term "3Rs." Recycling was cited as the most well-known of the 3Rs, followed by reuse.

Though only thirteen percent considered reuse the most effective method of the 3Rs, recycling and reduction were almost equally considered at forty one percent and thirty seven percent respectively. The analysis highlighted that most of those who were aware of reduction as a 3R activity regarded it as "the best way to deal with the garbage problem" (p.8).

More people (52%) would prefer a deposit system to reuse glass bottles rather than recycling glass bottles through the Blue Box program. "Reusing containers, and participating in recycling programs top the list of steps residents report taking to deal with the amount of garbage they throw out" (p.9).

Government Responsibility

Sixty one percent of GTA residents answered that it was important which level of government provides garbage disposal. A distinction lies between Durham residents, of whom 72 percent believe it is important which level of government provides waste disposal and York residents, of whom fifty eight percent consider this important.

Sixty one percent of GTA residents "do not favour the transport of regional garbage outside the region for disposal" (p.10). Thirty two percent believe it is acceptable to dispose of waste outside the region in which it was generated. "The opinion that the responsibility for this service should continue to be that of local municipalities is accepted by most residents across all regions" (p.11).

Approaches and Activities - Recycling, The Blue Box Program

Seventy three percent of GTA residents participate in household waste recycling through the Blue Box program. Though recorded participation is highest outside of Metro (82%), this could be attributed to the higher concentration of apartments and condominiums in Metro, many of which are not equipped with the Blue Box recycling program. Only thirty two percent of those living in apartments participate in the Blue Box recycling program. Extracting apartment dwellers from the participation level results in a 93% participation level of respondents who live in houses. For those who live in houses, two percent do not participate because it is too time consuming, and two percent do not participate because "they believe the program is ineffective" (p.12).

Participation is higher in Halton Region (88%) than York (87%), Peel (85%) and Durham (68%) Regions.

Composting Kitchen and Garden Waste - Awareness and Participation

Although over half (52%) of those surveyed report that they know what backyard composting involves and why it is done, only twenty two percent report composting waste in their backyards. More of those who live outside of Metro, especially Durham and York, describe backyard composting participation.

Twenty nine percent of those surveyed do not participate in backyard composting because they live in apartments, thirteen percent do not participate because they

do not have backyards. Of those who make up the rest of the statistics, ten percent do not have time, ten percent have no knowledge about composting, eight percent do not know how, six percent do not have room, and five percent believe composting is too messy.

Of those surveyed who reported not participating, those in Metro tended to live in apartments while those living in York and Peel reported that they had never heard of composting.

If increased information and access to containers was provided, fifty three percent of those not currently composting would likely start to participate.

In comparison to backyard composting, if a municipal curbside program was implemented, sixty one percent would participate. Twenty eight percent of GTA residents thought collecting kitchen and garden waste was too awkward and messy. Twenty six percent are simply not interested, and five percent report having no time to participate.

"To discover the effect of a municipal program on backyard composting, respondents were asked if they would continue their backyard composting activities if they had a municipal program available to them" (p.14). Three quarters (76%) would maintain their backyard composting activities. Nineteen percent stated that they would halt their backyard composting. Those who live outside of Metro, particularly those who live in Halton Region, would continue their backyard composting activities regardless of a municipal program.

Waste Reduction Efforts

A question focused on residential waste management behaviour noted that, "if they changed what they buy, and were careful to reuse, recycle and compost" thirty five percent believed they could reduce up to twenty percent of household garbage (p.15). Thirty two percent believe they could reduce the amount of waste they generate by up to forty percent. Over a quarter (27%) believe they could achieve over forty percent reduction in waste generated.

These figures are considered in addition to those already accomplished through existing recycling (Blue Box) and composting programs.

Eighty five percent agree that legislation should be enacted mandating that packaging should be classified as returnable, recyclable or disposable. Fifty one

percent of those surveyed would support a requirement mandating governments to use recycled materials, regardless of whether they cost more. Fifty three percent would advocate compulsory participation in waste reduction. Thirty seven percent, representing "one in four respondents would strongly (16%) or somewhat agree (21%) with requiring households to pay a fee for the amount of garbage" they put out for pick-up (p.16).

To evaluate the concerns of residents in the GTA regarding the possible siting of a waste management facility in their community, those surveyed were asked if any of the following was a major concern:

- a. Possible effects on human health
- b. Noise from the facility
- c. The cost to taxpayers
- d. The aesthetic appearance of the facility such as height
- e. Air pollution
- f. Truck traffic
- g. The impact on property values
- h. Disposal of incineration ash (p.17)

Ninety percent noted health and air pollution effects as significant concerns. Fifty nine percent cited major concerns regarding incineration ash disposal. Thirty percent stated the method of disposal is of minor concern.

Half of the respondents cited serious concerns about the potential effect on property values if a facility was sited in their community. The remainder of those surveyed express minor concern over property values.

"One in four express major concerns about the noise of the facility (43%), truck traffic (43%) and the appearance of the facility (36%). A further one in four respondents have minor concerns about these three areas: noise (44%), traffic (46%) and appearance (46%)" (p.17).

Four options were proposed to respondents regarding toxic waste disposal:

- i) Distribution to households of special containers for HHW that would be collected as a component to the recycling program. Fifty percent favoured this option.
- ii) Taking HHW to a depot (17%).

- iii) Implementing a deposit system on HHW products for return to retail outlet (17%).
- iv) Creation of a central facility to which people call for collection of HHW (15%).

Environmental Sciences Research Centre, Université de Moncton. (Prepared for the Provincial Solid Waste Commissions and Environment.) Composting: Its Role in Municipal Solid Waste Management. Moncton, New Brunswick. 1991.

(a) Public and IC&I Surveys

Public Survey

Survey on public perceptions to composting consisted of a 400 person sample (200 urban and 200 rural respondents). The survey found:

- over 70% of the public agree or strongly agree that compost from MSW is an acceptable product - only 14% believe that MSW compost is unacceptable.
- 25% believe that sludge and sewage compost is an acceptable product - 57% believe that this form of compost is not acceptable.
- Industrial food wastes compost is acceptable to 47% of respondents - 27% believe that it is not an acceptable product.
- 87% of respondents stated that they would like to try compost in their gardens.
- Concluded that compost well positioned in the minds of potential consumers but that the product was not being marketed well commercially.

Commercial/Institutional Survey

Survey consisted of 50 completed interviews by compost users. The survey found:

- 60% believe MSW compost is an acceptable product - 23% believe that it

is not acceptable.

- 56% believe that sewage/sludge compost is an acceptable product - 35% believe it is not acceptable.
- 60% believe industrial food waste compost is an acceptable product - 15% believe it is not acceptable.
- Product consistency, availability and fertilizer qualities were the highest rated qualities given by respondents. Price was only the 7th most important quality.
- Concluded that: IC&I users were generally more receptive to using sewage and sludge compost than public respondents; IC&I users were open to using composted products; inference could be drawn that, "potential users who need and want the product find it easier and less expensive to simply make the product than buy it. This is the key obstacle if this market is to be penetrated." (p.63)

(b) Marketability of Compost Products in New Brunswick

A survey of compost retailers and wholesalers in Atlantic Canada was conducted to supplement previous survey research. The study introduced the caveat that, if sewage sludge compost is to be used, a more intense educational program of potential users will be required.

Domestic (Home Gardener) Market Survey Findings

- The price range for the product must be within the same range as other comparable products such as peat moss and chemical fertilizers.
- The production of an environmentally safe product is considered very important. Consumers may even be willing to pay a premium price for a naturally produced product provided it meets their needs.
- Promotional materials are needed to educate the market. These include newspaper articles, door-to-door distribution of brochures and endorsements of the product by high-profile users.

Commercial/Institutional Market Survey Findings

- The most important product attributes are: product consistency, availability, ease of application and good fertilizer.
- Compost costs must be competitive with those of other products.
- Promotional strategies should discuss what it can do, not what it is made from.
- Endorsement of the product by high profile users adds credibility.

In closing the discussion on marketing the study argued that government or public support of any new compost facility is vital, and noted that there is a growing movement to introduce specific compost-industry regulations (e.g., Ontario, Maine). As well, California has legislation requiring all government departments and municipalities to use compost products.

(c) Major finding from Tour of Composting Facilities

The study noted that with respect to larger-scale facilities - particularly in Europe - there was a shift from mixed MSW composting to source-separated composting and even to green-fraction-only composting. This is due mainly to increasing environmental concerns with regards to heavy metal contamination and its effect on the marketing of the product. Operators often found it difficult to market mixed MSW compost. For example, the Tournai facility cannot sell its product in Belgium but finds a ready market in France (used in vineyards) where standards are not as strict.

Study Recommendations

Among the recommendations were the following:

- 1) "...composting has an important role to play in managing wastes in New Brunswick."
- 2) "...quality of the compost product should be a major consideration."

- 3) "...as much source separation as economically possible be incorporated into the composting scheme."
- 4) "Composting of MSW should be done in conjunction with a recycling program."
- 5) "Composting of mixed MSW (i.e., with little or no separation involved) can only be recommended in the following situation: where end-use of the product will be almost entirely in the non-agricultural sector."
- 6) "A household-hazardous-waste system should be included in an effective composting plan to further better the quality of the final product."

Gale, Robert J.P. (Study conducted for Barclay Recycling Inc.) Home Composting With the SoilSaver: An Empirical Study of Waste Diversion in the Regional Municipality of Hamilton-Wentworth. Toronto, 1991.

The study was conducted primarily to determine the amounts of waste which were being diverted to compost. Some of the more useful observations were:

- The majority of respondents learned of the composting program from a newspaper.
- The primary reason given for starting composting is that it helps to reduce waste.
- More than one third of the respondents were previous composters.
- Tending the compost pile was the only composting task considered somewhat difficult.
- Some households had slight problems with insects, odours, insufficient composting capacity, insecure lids, and rodents, although these problems rarely interfered with composting habits.

Maclaren, Virginia W. (For the Municipality of Metropolitan Toronto). Metropolitan Toronto Home Composting Study. 1990

The purpose of this study was to provide a follow-up evaluation of Metro Toronto's home composting program. By the spring of 1990, Metro had distributed more than 19,000 subsidized home composting units (three types) to residents requesting them.

A questionnaire survey was administered to 734 participants in the composting program. The survey included personal interviews, mail questionnaires and telephone follow-ups. The response rate was high at 78%.

Among the study findings were:

- Most respondents learned of the program from the media (newspaper, radio) or from friends.
- Most purchasers were university educated.
- The reasons cited for composting were, in order of importance: reduce waste; benefits for the garden; availability of a subsidized unit; being persuaded by another person; and, some other reason.
- Tending the composting pile was considered to be the most difficult task, with two out of five respondents reporting some difficulty here. There were few difficulties identified with any of the other activities.
- More than one-half of the respondents reported difficulties with flies. Other difficulties identified (in order of prominence) included: winter composting; insufficient unit capacity; poorly fitting or insecure lids; odours; and, scavenging animals.
- Importantly however, all of the problems noted above (Point #5) resulted in only 3% of the respondents discontinuing their composting activities. It can be concluded that respondents are therefore pleased with the composting program.
- Over 95% of the respondents were satisfied with the instructional materials provided.
- Most households would make use of a municipal curbside collection program for compostable waste.
- Most respondents (82%) would not have purchased their units if they had only been available at retail prices. The availability of subsidized units was particularly important to "new" composters.

**Metropolitan Works Committee (for the Municipality of Metropolitan Toronto).
Home Composting Program Participants Survey, 1992.**

This report discusses the results of a survey questionnaire which was mailed to a sample of Metro Toronto residents (900 respondents, representing over 60% contacted) who had purchased composters from 1989-91.

Among the report's findings were:

- Nearly all (98%) of the composters were being used, and 85% were being used year-round. Only 2% of those surveyed expressed dissatisfaction with the units.
- For most (60%) of the respondents, this was their first experience with composting.
- Three-quarters of the respondents reported that they would not have purchased a composter without a subsidy.
- Most respondents learned of the program through the media (newspapers, radio, T.V.) and friends.
- The most common concerns, in order of importance, were: limited capacity; insecure doors/lids; insects, flies or bugs; scavenging animals; and, odours.
- A majority of respondents would have composted more if a kitchen container had been provided.
- Most respondents (87%) indicated that they would continue with backyard composting even if curbside collection of food waste was provided.
- It can be generally concluded that the level of satisfaction with the backyard composting program is high. The major concern has to do with the capacity of the units.

Ontario Recycling Update. Group seeks to site centralized compost facility in city neighbourhood. Oct-Nov 1991.

This article discusses Citizens for a Safe Environment (CSE), a grassroots

environmental group in the Riverdale community of Toronto, and its attempts to use "community siting" to plan a centralized composting site.

CSE claimed that the majority of this community support the idea that any type of plant coming into the neighbourhood would have to meet conditions regarding construction and operation. Those conditions would include:

- community review of the design to eliminate odours.
- a joint Metro/labour/community committee for the planning process.
- giving legal authority to that committee to shut down the plant if it fails to operate acceptably.
- requiring that trucks travel on routes designed by the community and use least-polluting fuels.

Sims, Kathy L. & Beesley, Neil H. Composting Food Waste - Metropolitan Toronto. In Destination Elimination: An Economic View. Recycling Council of Ontario - 13th Annual Conference, Oct. 7-9, 1992. Ottawa (Partial Proceedings).

Paper discusses Municipality of Metropolitan Toronto's on-going large scale pilot composting program. It was recognized that choosing 3 middle-class neighbourhoods - all primarily English-speaking - for the pilot projects would make the promotion of the project somewhat easier. It was understood that any permanent project would have to deal with the incredible ethnic & language diversity in the city. Metro recognized that promotion would entail, "penetrating the shell of a multi-cultural, media saturated population[and]...determining the ins and outs of voluntary versus legislated participation."

Taylor, Paul. The First Year with Wet/Dry Composting: A Report from the Field. Resource Recycling. January, 1993.

This article reviews Wet/Dry programs in Guelph, Halton, and Toronto Metro Regions. The author notes that, "no clearly successful collection approach emerges out of that work yet either, though new ideas continue to be tried...all of the work that has been undertaken to date points the way toward a clear narrowing of the options. While a workable system for collection of organics has

not yet been found, some clear ideas have developed about what appears to be unworkable, and thus not suitable for further pursuit." (p.34)

Taylor criticizes the Guelph program: "in some of its earlier work, Guelph was able to establish that its variation on the two-stream approach appeared able to capture a greater percentage of the organic waste stream than a three-stream program; however, the practicality of "cleaning up" the organic material that is produced by the two-stream approach sufficient to develop a good, marketable compost remains unproven. While there are some obvious savings in collection on the two-stream side, the quality of the organic stream produced may be too poor." (p.36). (*Note: HSA reviewed these comments with the Guelph Wet/Dry staff and they did not know where he got this data from. Their compost stream has exceeded all MOE standards.)

Taylor notes that the compost in the Mississauga project meets all MOE standards. However he describes the key issues.

This compost is very highly contaminated with inorganic contaminants, despite very intensive hand-sorting of the incoming feed materials, and thus does not represent a sustainable approach to the production of a first-quality grade of compost. In particular, significant quantities of household hazardous wastes (HHW) were recovered from the organic stream on this route, including sharps such as razor blades and hypodermic needles. One of the principal flaws in the two-stream approach is that it means that HHW must either be deposited in the wet stream or the dry stream - there is no "waste" stream left. (p.36)

Taylor's recommendations:

"All of the work that has been done on wet/dry research in Ontario to date shares the common assumption that the entire organic stream (be it within the context of two streams or three) needs to be somehow collected and dealt with as one mass of material. This assumption has been made at least in part because of the desire to minimize the number of collection passes that would be made at a given location.

This assumption, however, has brought with it significant costs. It has meant that the normal degree of waste stream seasonality found in mixed garbage is dramatically magnified in separated organics, since that is where almost all of the seasonality originates. It has also presented significant problems around the handling of brush and woody wastes, which must be subjected to size reduction,

even if the rest of the organics need not." (p.43)

USA Today. Composting catches on, but some say it stinks. Monday, August 19, 1991.

Article identifies odour as being the single most important problem in composting.

Land and Lakes Composting Firm in Illinois tried masking the odours with cinnamon or pine scents but these seemed to make the problem worse.

St. Cloud, Minnesota, plant had to spend millions of dollars to enclose the open air portion of the facility because of citizens' complaints about odours.

Finally, Agripost's \$30 million plant had to close in Dade County, Florida, because of the powerful chemical odour, referred to as "similar to rotting cheese." The principal of a nearby elementary school stated that the odour made teachers and students physically ill.

County officials felt it was a shame to close the plant but felt that the site was simply in a bad location.

2.0 Health Effects (Composting)

Curtis, Cynthia C., Brenniman, Gary, R. & Hallenbeck, William H. Municipal Solid Waste Composting: Technologies, Health Effects, Effects on Plant Growth and Yield, Regulations, and Descriptions of U.S. Sites. University of Illinois Centre for Solid Waste Management and Research. Chicago, 1991.

This paper has a section on human health and agricultural effects from MSW composting. It presents detailed breakdowns of the technical data and provides many sources for more detailed research. Among the key points are:

- Typical household wastes can host a number of pathogenic organisms, e.g., facial tissue, animal faeces, soiled diapers and putrescible foods.
- Three major areas of public concern are: 1) exposure of public to aerospores, vectors, odours and human pathogens from the compost facility; 2) more concentrated exposures to workers at the facility; 3)

potential public health problems from the use of the end product.

- The risk of infection to healthy individuals from airborne microbial particles is low, although there are concerns about certain higher-risk individuals, e.g., those with weakened immune deficiency systems or those weakened by respiratory infections. Worker risks appear to vary between individuals and, since the risk compared to the general public is higher, precautions such as proper hygiene, protective clothing and immunization are recommended.
- The end product can contain pathogenic organisms and metals but studies indicate that properly managed windrow composting will produce a safe product.
- The destruction of pathogens in compost is directly proportional to the temperature increases achieved in the piles (article supplies data on time lengths and temperatures).
- The safety of the compost for crop use depends not only on the extent of pathogen destruction during composting but also on how well the remaining pathogens can survive in the field.
- The application of compost which is not sufficiently mature is the most common reason for adverse effects on crops.
- For compost used on forage land, the most critical consideration should be contaminants, e.g., glass, which can be picked up by animals or in harvested hay.

Maritato, M.C., Algeo, E.R. & Keenan, R.E. Potential Human Health Concerns From Composting. Biocycle, Dec. 1992.

This article surveys the literature on the human health effects associated with the thermo-tolerant fungus *Aspergillus fumigatus*. It is concluded that the scientific literature did not support the assertion that health impacts were associated with sludge composting plants. It argues that only when a definitive understanding of the dose-response function is available can conclusions be drawn about health risks.

3.0 Recycling Programs, Behaviours, Attitudes

Braun, I. and J. Hinshaw. Targeting Commercial Business for Recycling. Resource Recycling. 1991

The article tracks the type of waste that comes from businesses. The first step involved doing a waste characterization study by SIC code.

"Results of this study show that several highly recyclable materials compose a significant portion of business waste streams." (p.32)

Burn, Shawn M. Social Psychology and the Stimulation of Recycling Behaviors: The Block Leader Approach. Journal of Applied Social Psychology. 21 (8), 1991.

Discusses a field experiment in which citizens who consistently recycled were approached and asked to be "block leaders" in recycling. A second treatment community was simply given some recycling bags and written communication, and a third control group received no treatment. The results indicated the effectiveness of the block leader approach.

De Young, R., et al. Individual Source Reduction Behaviour: A Study of the Effect of Environmental and Economic Motivational Information. School of Natural Resources, University of Michigan. 1991.

The study dealt with the source reduction behaviours of a small Michigan village, and found:

"Through the course of this study we found that individuals respond positively to educational and informational strategies aimed at reducing consumption and disposal of materials. Neither environmental nor economic rationales for source reduction emerged as most effective in changing behaviour; however, when the two were presented as a combined rationale, a significantly higher behaviour change score was observed. An important discovery was the concept of domains in source reduction behaviour: changing toxics use or shopping behaviour met with less success than changing trash disposal and reuse behaviour inside the home. Of interest to municipal policy-makers, as well as to many behavioural researchers, was the finding that significant behaviour change could be affected without the use of direct material incentives." (p.56-57)

De Young, Raymond. Recycling as Appropriate Behaviour: A Review of Survey Data from Selected Recycling Education Programs in Michigan. Resources, Conservation and Recycling. 3, 1990.

This review compared the data from surveys conducted (1986-87) by six separate recycling education programs funded under the Clean Michigan Fund. Survey questions were designed to assess attitudes about recycling, self-reported behaviour, future behavioural intentions, perceived barriers to recycling and motives for recycling. Those surveyed were selected randomly except the two groups surveyed by the Northern Michigan Recycling cooperative (NMRC). The NMRC survey included a group of local government officials and another group of people who had called the recycling information hotline to seek information about recycling.

It is concluded that the survey data demonstrates that there exist positive attitudes in favour of residential recycling programs, that these attitudes will continue, and that a notable percentage of those surveyed plan to increase their recycling activities.

Everett, Jess W. & Peirce, J. Jeffery. Social Networks, Socioeconomic Status, And Environmental Collective Action: Residential Curbside Block Leader Recycling. Journal of Environmental Systems. 21 (1), 1991-92.

Research investigates data from a survey of 269 block leaders [role models] and examines the inter-relationships of block neighbours as it relates to curbside recycling behaviour. Higher levels of involvement in curbside recycling are found to be related to higher levels of socio-economic status, among other findings.

Folz, David H. & Hazlett, Joseph M. A National Survey of local government recycling programs. Resource Recycling. December, 1990.

A mail survey was used to identify recycling policies, strategies and practices used by communities [in the U.S.] reporting higher rates of citizen participation in recycling. These program characteristics are discussed. For example:

- Mandatory recycling programs reported a significantly higher rate of recycling participation than voluntary programs. And, recycling participation is even higher in mandatory programs with sanctions or warnings for noncompliance.

- Communities which provide their residents with one or more containers for recyclable materials have higher rates of citizen participation.
- Citizen participation is higher in communities that use composting as a method of handling degradable solid wastes.

Hager, Lois B. Multi-material Recycling in Urban Housing Authority Complexes. Resource Recycling. June, 1992.

In 1987 the State of Connecticut passed a mandatory recycling law to collect nine materials for recycling. In response to concerns that the legislation could not be applied to low-income, multi-residential dwellings, the Connecticut Department of Environmental Protection created four pilot projects in communities which had no recycling programs at the time. The purpose was to promote recycling, measure participation rates, and gauge information about residents' attitudes and behaviours regarding recycling.

Six multi-residential dwellings were involved in the pilot projects, all of which were managed by housing authorities and all but one consisted of residents on public assistance.

Among the findings were the following:

- (1) Participation rates were higher when garbage collection was weekly rather than bi-weekly. Residents were adverse to storing recyclables in their apartments for two weeks at a time, fearing insects and perceiving general inconvenience.
- (2) Greater success was achieved when drop off depots were conveniently located at the complexes, or when door-to-door collection was provided.
- (3) Supporting education by the recycling coordinators increased participation and reduced levels of contamination. The use of language(s) appropriate to the residents was considered important.
- (4) Contamination was no more severe in these recycling pilots than in typical suburban curbside recycling collection programs.
- (5) The complex with the elderly residents recorded the highest participation rates. Low-rise complexes recorded the lowest participation rates, perhaps

because the residents were required to keep an eighteen gallon container in their apartments.

- (6) It was concluded that the participation rates "do demonstrate that substantial numbers of people in low-income multi-family complexes will recycle if provided with appropriate education and a convenient collection system" (p.55). A more prudent conclusion points to the possibility of successfully implementing recycling programs in low-income and multi-family housing authority dwellings specifically, and in multi-residential dwellings in general.

Hay Management Consultants. Systems Breakdown: Opinion Leader Research Program. Canadian Environmental Issues and Localities. "Not In My Back Yard." 1990.

This report focused on public participation and household behaviour related to waste management. It is argued that the impact of individuals and households is likely to be greater on industry than on governments. Household behaviour in choosing consumer goods and services or in making investment decisions, for example, can reward efforts made by environmentally-responsible corporations (p.31). In that sense, the responsibility of individuals in households is twofold. That is, not only do individuals have the duty to practice the 3Rs at home with their own waste, but they should also carefully choose the products they consume.

Though "reduction is proportionately more significant than recycling in reducing the waste stream" (p.31), participation in recycling programs has been far more widespread in both industry and homes. Industries also benefit in a public relations sense by creating associations between their product and/or production practices and the "greening" of business. With regard to households, it takes less effort to throw aluminum cans into a blue box than to consciously change the consumption habit of buying over-packaged goods. The Blue Box program has been a successful example of how lifestyle changes can occur.

Apartment buildings are a gap in the success of household participation in recycling. Though newer buildings may be equipped for recycling, older buildings are not designed to handle the streaming of waste. It is difficult for existing buildings to implement recycling programs for which there is no space nor facilities. In the future, it is possible that building codes could be modified to mandate recycling programs in buildings.

Toxic Waste Disposal

The Ontario Waste Management Corporation (OWMC) has proposed that technological options are needed to resolve final disposal alternatives for toxic waste. The OWMC proposals are presently in the public hearing stage, but experts concur that construction of the needed facility will not commence until 1993-96. While the OWMC affirms that there has been a reduction in toxic wastes in processing, there will always be remnants that need to be managed in a central facility.

Regardless of the need for such a facility, there has been strong public opposition to siting the facility (in West Lincoln). The OWMC has highlighted West Lincoln as the best technical solution, but NIMBY opinions have been constant and strong. Most of the concerns stem from fears that property values will decrease once the facility is built and in operation. Though land value concerns appear to be of primary economic, "the economic aspect is really only the surface of the concern, since investment in property also represents a desire to become attached to a locality (p.33)." The "strong psychological motivating force to retain the place as desired" (p.33), is a force that cannot be financially compensated.

This situation reinforces the point that localities are central to the waste management/recycling debate in that they produce waste, could be chosen as sites for waste management facilities and, are located along waste management transportation routes.

Locality reactions, then, are critical in resolving waste management questions; in the words of one expert, localities are living on borrowed time with respect to waste disposal (pp. 34-35).

The potential for localities to be implicated in waste management initiatives to this extent should serve as an incentive to reduce and manage waste at source. Locally, 3Rs program should include waste reduction in homes, central composting sites and recycling depots. Although the same number of trucks would be required to transport the waste to recycling depots where waste would be streamered (wet/dry), public acceptance of these storage facilities seems greater than that for landfills.

Though localities may serve as a partial answer to the garbage question, the solution lies in a political decision at the Regional level. There is a need for the Province to start developing a solution to the problem. Municipalities simply do not have the political power or financial resources to produce a viable waste

disposal plan. Locally based trends are the starting point from which "the growth of political pressure for change at the larger scale" will occur (p.37).

Howenstine, Erick. Market Segmentation For Recycling. Environment and Behavior, 25 (1), January, 1993.

A study of recycling perceptions, opinions, and behaviors of members of 578 households on Chicago's North Side illustrated the value of market segmentation for planning a recycling program. Analysis focused on non-recyclers (61% of respondents), and their reasons for not participating. Opinion scores showed the relative importance of 12 obstacles to recycling (e.g., inconvenient, too messy, don't have room, don't care). A sizable group was identified which appeared to be on the verge of recycling. Addressing their issues would be a cost-efficient way to increase participation rates. Differences in perceptions and opinions between racial/ethnic groups were also identified.

Among the conclusions was the following:

- ...efforts to stimulate recycling in these communities may be less successful than efforts elsewhere - until more urgent and fundamental problems [ed: e.g., crime, unemployment] are solved.

This discussion of the differences and difficulties in encouraging recycling behavior in a large urban environment with many ethnic and cultural groups, may be of particular relevance to discussions of behaviour in the Greater Toronto Area.

Lansana, Florence M. Distinguishing Potential Recyclers from Non-recyclers: A Basis for Developing Recycling Strategies. Journal of Environmental Education, 23 (2), 1992.

This study examined the underlying dimensions of household recycling behavior. Four sets of variables were used to classify recyclers and non-recyclers: the demographic attributes of the residents, their knowledge of the recycling program, their perception of program policies and problems, and their attitudes toward the environment. The results suggest some options for promoting higher participation rates in community recycling programs.

Among the findings were the following points:

- Recyclers are more likely to be homeowners than non-recyclers.
- Recyclers are more likely to have more education.
- Recyclers tend to know more about the planning operations of the recycling program.
- Recyclers receive most of their information from the print media (newspapers) and feel that this is the best communications medium.
- Recyclers felt that programs should be mandatory and preferred curbside programs to having drop-offs.
- Recyclers tended to perceive a greater need for recycling in the community than did non-recyclers.

The author believes that these findings have a number of implications for recycling programs, including:

- Recycling policies must accommodate variations in communities. Communities can largely be characterized by socioeconomic status and corresponding strategies developed.
- Programs should be developed which make participation easy. This entails things like providing curbside pick-ups and providing households with special containers for storing recyclable materials.

Spaccarelli, Steve, Zolik, Edwin & Jason, Leonard A. Effects of Verbal Prompting and Block Characteristics on Participation in Curbside Newspaper Recycling. Journal of Environmental Systems. 19 (1), 1989-90.

This behavioural experiment was conducted in the South Side Chicago area in a low income neighbourhood. It attempted to assess the efficacy of "two prompting procedures to promote curbside recycling of newspapers (p.45)." One procedure consisted of the door-to-door distribution of recycling information pamphlets with limited conversation between the canvasser and resident. The other procedure consisted of distribution of the same pamphlets with verbal prompting by the canvasser for residents to participate in recycling programs. The blocks involved in the study were analogous in average income, pre-intervention participation levels and number of blocks with block organizations.

The experiment found that participation in recycling programs increased more with pamphlets and verbal prompting than with pamphlets alone. The authors believe the effectiveness of this procedure lies in the competence of the canvassers to communicate and motivate the residents, "because it added credibility or weight

to the information in the handbills" (p.55). The pamphlets alone were not very successful motivators.

Analysis of the experiment reveals that verbal prompting of the residents may have inspired them to communicate with others on their block regarding recycling initiatives/issues. The authors hypothesize that persons not participating in recycling are more likely to disregard verbal prompting, and those already participating are more prone to listen and be affected. Moreover, "the greater communication associated with organized blocks would be expected to have variable effects in terms of intervention outcome" (p.55). So communication among block club participants might have reinforced the verbal prompting, whereas it might have had the opposite effect among non-participants.

This explanation presumes that those encountering social pressure "tend to determine whether or not the behaviour being promoted is approved of or endorsed by an appropriate group of peers" - in this case one's neighbours - and then act accordingly (p.55).

The findings suggest two issues. One is that personal contact among program participants is meaningful. The other finding suggests that mediation can influence or support existing processes of social influence.

Vining, Joanne & Ebreo, Angela. Predicting Recycling Behavior from Global and Specific Environmental Attitudes and Changes in Recycling Opportunities. Journal of Applied Social Psychology. 22 (20), 1992.

This research study was designed to examine the effects of the availability of a curbside recycling program on recycling behavior, global environmental attitudes, and specific attitudes toward recycling. The effectiveness of the curbside recycling program in encouraging recycling behavior was striking.

4.0 Composting/MRF Siting

Biocycle. How To Tackle a Siting Challenge. May, 1990

The article discusses strategies for countering public opposition experienced during the siting of a combined transfer station/MRF facility in Mecklenberg County,

North Carolina. The paper argues that it is critical to gain overall community support for the project, even if one site doesn't work out.

Golob, Brian. How To Select The Right Location. Biocycle, August, 1990.

The article discusses the siting process for a centralized composting facility in Wright County, Minnesota. It notes how the process took into account factors such as noise, odour and groundwater contamination - but says nothing about public participation beyond a statement that the "next stage" would consider public concerns.

Golob, Brian & Davis, Chuck. Addressing Public Concerns in Project Siting. Biocycle. September, 1990.

This article deals with the efforts of Wright County Minnesota to deal with public concerns around the siting of an MSW composting facility as part of the County's solid waste reduction strategy. The various public concerns are broadly categorized and a brief description of the way they were addressed is presented.

Skibiski, Kevin C. Gaining Public Support by Design. Biocycle. August, 1992.

The article discusses siting issues encountered for the Springfield, Missouri, combined MRF/Composting Facility. It offers practical advice on how to deal with noise, odour and water pollution problems associated with siting.

5.0 Waste Reduction: IC&I Programs, Behaviour, Attitudes

Baker, N. Peel Region Helps Businesses Reduce and Divert Waste. Muniscope. 1991

A "Waste Reduction & Recovery Section" (WR&R) was established in 1985 to assist IC&I sectors in reducing waste. The section is primarily involved with solid waste assessment.

"The Waste Reduction and Recovery Section is currently researching market conditions for post-industrial mixed papers, steel, glass, and construction and

demolition debris with a view towards recommending to regional council that these materials be banned from landfill should conditions for collection and recycling be sufficient." (p.20)

Canadian Federation of Independent Business. 1991. The Green Grassroots: Small Business And The Environment.

In this report the Federation documented the results of a survey on the increasing environmental awareness and related activities of its membership. The report noted, for instance, that because only 6% of the small business sector is involved in manufacturing activities, the most significant small business environmental impacts would come from landfill waste and packaging. Therefore, the major contribution that small businesses could make towards ensuring environmental sustainability would be to reduce the need for products and packaging and increase the emphasis on recycling.

Among the other important survey findings were the following:

- Nearly 99% of the Federation membership expressed concern about the state of the natural environment. The areas of concern included everything from air and water quality, to the treatment of garbage and toxic waste, to the erosion of wildlife habitats and farmland.
- Approximately 70% of the membership was engaged to some degree in product reuse or recycling. Significantly, 86% of the businesses that do recycle receive no assistance from the government in the form of either financing, incentives or collection services.
- The intensity of 3R practices varies somewhat by industry and province, and differences appear to be most dependent on the availability of local 3Rs infrastructure (e.g., infrastructure more developed in Ontario, Quebec and B.C.).
- More than one-third of the respondents reported that 3R practices have meant a minimum 20% reduction in the waste they throw out, and one out of seven reported reductions in excess of 50%.
- Approximately 87% of small firms strongly favour measures which would limit the production and use of non-recyclable or non-reusable containers.

Importantly, however, the Federation also articulated some serious concerns about the "zeal" of governments being "both encouraging and menacing" (p.14). Some of these concerns have been paraphrased as follows:

- The tendency of governments to regulate all businesses (large and small) as one group and households as another is a problem. Business regulations which are geared to large firms rely on a complex array of restrictions, permits and penalties. Small firms, on the other hand, often have market impacts which are not much greater than households. For example, small firms of less than 5 employees - which account for 75% of all businesses in Canada - are estimated to generate an average volume of waste equivalent to 2 households. But, these businesses are required to adhere to rules designed for much larger firms.
- Recycling and reuse initiatives are limited by the lack of collection infrastructure for reusable and recyclable materials. The kinds of options available to households and to large firms are often not available or not cost-effective because of the tremendous economies of scale in waste collection.

More than three-quarters of the respondents believed that they needed improved collection of recyclable materials and better availability of recycling depots. This problem, i.e., lack of infrastructure, was by far the single most important concern identified by small business. As well, the Federation noted that while households are assisted with collection by local government, the municipalities often refuse to collect waste from business establishments.

- The relative costs to small business in meeting government regulations (in both time and money) can be up to 15 times greater for small firms than for larger ones.
- Rather than use "big-stick regulatory approaches" to enforce changes, governments should focus on facilitating change and removing the obstacles to improved environmental behaviour for business and for the public.
- It is "wrong" to assume that an economy could adjust to a flood of environmental legislation without an effort to develop a "sustainable economy" as well as a sustainable environment.
- The inability of government to make timely and consistent rulings is seen as

the major problem small firms have regarding regulation.

De Boerr, Hilary. Hotels Checkout Green Credentials. Recovery. (Undated).

Documents innovative work by Inter-Continental Hotels Group to develop a comprehensive manual incorporating the environmental practices implemented by its 101 hotels; it is now being promoted as an industry-wide handbook.

The article stresses that this initiative was undertaken primarily for environmental reasons, that is, shareholders were also increasingly demanding environmentally responsible practices.

Fishbein, Bette K. European packaging initiatives: leading the way on source reduction. Resource Recycling. March, 1992.

Paper notes that packaging, in both the U.S. & Europe, constitutes about one-third by weight of mixed solid waste. Germany and the Netherlands are leading the way with bold new initiatives to reduce packaging waste.

Germany faces a waste disposal crisis. The country is facing a disposal capacity short-fall of 10 million tonnes by 1997, and can no longer look to East Germany as a convenient spot to dump waste.

Netherlands most densely populated nation in Europe, with limited disposal options and serious problems with landfill options because of the high water table. Seven of 12 garbage incinerators are scheduled to shut down this year because they cannot meet stringent pollution standards (very sensitive issue - dioxin contamination of milk was traced to incinerators).

The German legislation, passed in 1992, has left the EC reeling. Basically, it says that packaging must be taken back, reused or recycled outside of the public waste management system. Those who produce the packaging accept full responsibility.

Packaging initiatives in the Netherlands emphasized cooperation between government and business rather than a regulatory approach.

(Balance of paper describes the programs in great detail, discusses the concerns of environmentalists and the implications of these programs for Europe and the U.S.)

Investor Responsibility Research Centre. Trash to Cash. 1991.

This U.S. report notes that recycling is often driven more by the environmental sentiments of the general public than by economic considerations.

...the primary reason for recycling's success in the 1990's...is that heightened environmental awareness is coupled with limits on traditional waste disposal practices (p.2).

The report argues that it is this "driving force" which is behind much of industry's interest in recycling, i.e., consumer demand for environmentally-friendly products (p.5). As an example, the report notes a survey conducted for the Glass Packaging Institute which found that 75% of Americans said they would prefer to purchase food or beverages in containers that are recyclable (p.5).

The report argues for the critical importance of the reliability of supply of recycled materials. It also stresses that industries have distinct incentives and obstacles, including large capital investments for processing equipment and contaminants in the recycled material, which can result in the manufacture of inferior products or damaged equipment. The glass industry, for example, cannot tolerate any contaminants.

Among its conclusions, the report finds that, "an infrastructure needs to be developed that reliably delivers recycled material in a form useful to industry" (p.8).

Laughlin, R.G.W. (Ortech International). Waste Reduction In the Health Care Sector. In Destination Elimination: An Economic View. Recycling Council of Ontario - 13th Annual Conference. Oct. 7-9, 1992. Ottawa (Partial Proceedings).

The Ortech International firm is involved in a number of programmes designed to help companies and institutions in the health care sector to reduce waste sent for disposal. This paper concerns a programme to reduce disposable wastes at the Ottawa General Hospital. The important points include:

- Unable to stimulate any interest in the plastics recycling industry to become involved in hospital plastics, i.e., effort to recycle IV bags was abandoned after used needles showed up in the waste loads.
- On-site composting of hospital waste diverted 46% of waste from disposal.

- Paper argued that there is a need for institutions to become more familiar with the new definition of biomedical waste, and to institute programmes to better segregate the waste into truly biomedical and non-biomedical streams.

Ontario Ministry of the Environment (Waste Reduction Office). Preliminary Study of Construction and Demolition Waste Diversion Constraints and Opportunities. 1992.

The Ontario Ministry of the Environment and Energy (MOEE) has identified four major barriers to waste diversion in the Construction and Demolition (C&D) industry. They are: market barriers; industry barriers; technical barriers; and, regulatory barriers.

Market Barriers

If waste diversion is to become successful, the MOEE argues that demand for source separated materials is needed. In identifying economic demand as a necessary factor for source separation in the C&D industry, the MOEE has also identified specific market barriers. They are:

- Presently, waste diversion is too expensive. The MOEE asserts that the costs of source separated materials must be competitive with virgin materials and landfilling costs.
- In addition to the problem of high costs, is the irregular and unstable supply of waste diverted materials, due to the seasonal nature of the C&D industry.

Industry Barriers

The MOEE discusses a number of barriers to waste diversion within the C&D industry, ranging from physical limitations, cost related issues and a lack of information exchanges. The MOEE has highlighted the following barriers.

- A limitation of space is identified as a site specific barrier in the C&D industry in carrying out waste diversion.
- Due to cost and time constraints within the Demolition industry, the shortest time possible is preferred for tearing down buildings, making it

difficult to salvage items for reuse.

- Within the C&D industry the MOEE also reports that there is a great deal of resistance to source separation of waste due to a lack of information exchange between contractors, sub contractors and haulers, and a lack of information concerning banned materials from landfills and available alternatives to disposal.

Technical and Regulatory Barriers

There appears to be some agreement with the GTA Home Builders Association, as the MOEE states that the lack of recycled material standards and guidelines can be a barrier to the industry. The MOEE has identified the following four areas where standards and guidelines are required: technical standards; quality assurance/quality control standards; public health and safety guidelines; and, environmental guidelines. The MOEE also contends that some government regulations unintentionally restrict C&D waste diversion.

Solutions

The MOEE presents a number of solutions for waste diversion in the C&D industry. There are practical solutions recommended for actual C&D sites, and solutions oriented towards materials, markets and government regulations and incentives.

- Creating greater awareness and planning of waste diversion among contractors and sub-contractors is suggested. The MOEE has recommended several on-site solutions in areas of limited space such as, bins being stacked and waste staging areas being allocated to each sub-trade on high rise projects. It is suggested that facilities need to be sufficiently flexible to accept commingled recyclable material.
- Solutions stemming from direct government initiatives including: market development through incentives such as government grants and programs; mandatory recycling legislation; and, taxes levied against products not containing recycled materials.
- Educating the C&D industry, engineers, architects and designers in 3Rs to ensure waste diversion is taken into account from the design stage through

to the building stage.

In overcoming these barriers the MOEE believes greater use of recycled material will be encouraged. The major emphasis of the proposed solutions is on recycling, rather than on reduction and reuse. Recycling is expected to become a success through a growing economy which is characterized by a greater demand for recycled goods.

Regional Municipality of Waterloo. Results of the Telemarketing Survey of Industrial Businesses. Cities of Cambridge, Kitchener, and Waterloo. (Personal Communication). 1993.

The focus of this survey is on industrial companies. The goal of the study is to: to establish appropriate contacts with each company, assess familiarity with 3-R practices, to assist in developing needed programs, and improve communication between the Regions' waste reduction office and contacts." (p.1)

Companies generating small volumes are no longer attractive to recyclers.

"Lack of knowledge of recycling markets has resulted in numerous companies stockpiling materials and in some cases companies are simply waiting for these markets to expand and improve." (p.2)

One key issue identified is why and how some companies get free city service and others have paid service. (p.2)

"The pilot study revealed a need for more accurate dissemination of information. This recent study confirms these results" (p.3)

6.0 Waste Reduction: Residential/Municipal

Abt Associates Inc. Promoting Source Reduction and Recyclability in the Marketplace. (Prepared for U.S. Environmental Protection Agency). 1989.

The report focuses on the role of household consumer demand in the recycling process. In particular, the report reviews existing research, surveys and existing consumer-oriented education programs to learn how consumers, through their purchasing decisions, can promote source reduction and recyclability. (p.1)

This report primarily emphasizes marketing as the way to promote source purchasing decisions. As well it notes that: education through advertising is critical; long-term consumer changes need to be emphasized; and, there is a need for labelling requirements/standards.

Alderden, J. Volume-Based Rates, Dream or Nightmare? Recycling Today. November, 1990.

This study found that programs that put a basic collection cost on each homeowner to cover the fixed costs, a volume-based price to cover the fixed costs, and a volume-based price to cover the variable costs make for a more reliable source of revenue. (p. 53)

Overall, in the long-run it appears to be a good system, but there are a variety of operational problems in the short-run, such as burning, and the over-filling of bags (which is dangerous for workers). (p.52)

De Young, R., Duncan, A., Frank, J., Gill, N., Rothman, S., Shenot, J., Shotkin, A. & Zweig, M. Promoting Source Reduction Behavior: The Role of Motivational Information. Environment and Behavior, 25 (1), January, 1993.

In a study of the conservation behavior of 103 grocery shoppers in Chelsea, Michigan, an information and prompting strategy was used to test various rationales for adopting source reduction behavior. The experimental intervention consisted of mailing an educational pamphlet to participants. The experimental design included four treatment groups: a control and three others. These three other treatment groups each received a pamphlet giving environmental, economic, or a combination of environmental and economic rationales to reduce waste at the source. From data collected in pre- and post-intervention survey instruments, it was shown that both environmental and economic rationales for practising source reduction led to significant increases in reported source reduction behavior. Additionally, the type of conservation behavior promoted (e.g., toxics use reduction) and the location in which it is practised (i.e., at home, at a store) were found to have an impact on the success of the interventions. Participants were more likely to adopt home-based source reduction of non-toxics over either store-based activities or activities involving toxics use reduction.

Among other things, the authors conclude: "The increase in reported source reduction behavior following such a low-intensity and relatively low-cost

intervention should be welcomed news to public officials responsible for promoting waste reduction." (83).

Eckstrom, Barbara & La Barre, Susan. Trashtags and Trash Lite: Tompkin County's (NY) Fee-Based Model for Waste Reduction. In Destination Elimination: An Economic View. Recycling Council of Ontario - 13th Annual Conference. Oct. 7-9, 1992. Ottawa (Partial Proceedings).

- Program provided tag subsidy program for low income households.
- 32 arrests made in 9 months for illegal dumping (arrests highly publicized to garner full deterrent effect).
- Survey showed that 62% favoured and 26% opposed the trashtag program; 47% were putting out less garbage; 51% recycled more; and, 16% composted more.

Environics Research Group. Report to the Ontario Ministry of the Environment on Issues Surrounding Waste Management in the Greater Toronto Area, The Metropoll Report. 1992.

The leading part of this report discusses a survey on awareness of waste management problems. About 60 percent of residents surveyed "are aware of some sort of action being taken to deal with the waste management problem (p.12)." Though fifty seven percent of residents regard waste disposal as a "very serious problem" (p.11), awareness of specific waste management measures ranges from 36 percent awareness of the search for landfill sites; 34 percent unaware of anything being done to manage waste; and 2 percent awareness of composting. Importantly, however, "over two-thirds of Greater Toronto Area residents (70%) either strongly (34%) or somewhat (36%) agree that municipalities should be responsible for managing the waste they respectively produce (p.13).

There was a virtual split in awareness of local disposal as a Government Policy, with 45% unaware and 44 % aware of this initiative. Seventy eight percent of those surveyed would be in favour of this policy.

Though there was such a strong majority in favour of local management of waste generated locally, 59% of residents were initially in favour of exporting waste to willing communities. However, once the surveyors raised some negative issues

around the exporting of waste (e.g., potential for spills, wasting energy, exploitation of poorer communities), 35% of those supporting the idea of transporting waste to other parts of the Province changed their minds and became strongly (12%) or somewhat opposed (23%) (p.16). Combining these two questions and answers results in a 59% opposition to exporting waste to willing communities.

Forty six percent of those surveyed were initially in favour of incineration as a method of waste disposal, while 46% were opposed. Again, once arguments are made against incineration (e.g., expensive, creates toxins), one in four changed their opinions. Combined, this results in a 65% opposition to incineration as a method of waste disposal.

If landfills were to be sited locally to manage locally generated waste, and included a full assessment of all environmental impacts and the requirement for public hearings before an independent tribunal of experts, 72% would approve of this policy (p.17).

Most people appeared to trust Regional governments to administer the process of selecting landfill sites, with a 37% approval rating for a committee of all Regions.

Krivit, D. and Schmidt, S. Variable Fee Systems in Minnesota. Biocycle, September 1992.

Historically, residents of Minnesota have been billed by their county for waste collection services. In 1989 a law gave preference for volume or weight-based trash fees rather than a flat monthly fee.

There were problems associated with going to this type of system: commercial haulers complained of people dumping waste in dumpsters (most are now locked), bags must be sufficiently strong (people tend to compact the garbage), and fit in the cans.

It is recommended that a base/minimum collection rate always be charged. Problems with multiple-family dwellings were also noted.

MacLaren Engineers. 1991. Application of Flow Control in Ontario. Report to Office of Waste Reduction, Ministry of the Environment. October.

The report notes that municipalities are seeking more direct control over all aspects of the solid waste stream, particularly IC&I, in order to meet provincial waste diversion targets. The economic situation for municipalities has changed in regards to waste management; it is currently much more costly because of municipal recycling programs and new engineered landfills.

Among the report's findings are:

- **Commercial Collection by Municipalities**

The collection of IC&I sector wastes and recyclables is more cost effective than the collection of residential waste and Blue Box materials, because it offers direct revenue potential through contract fulfilment. (p.20)

- **Designation of Facilities**

Local governments have limited control over how IC&I waste is handled and disposed. Due to increased tipping fees, many are not using facilities; are exporting waste; and, denying local government of the revenue from landfill. These factors present a distorted picture of waste diversion activities.

- **Need for Greater Municipal Control**

Municipal ownership of the solid waste stream and waste diversion facilities would prevent the loss of revenue caused by the export of non-recyclable and recyclable materials outside a municipality's jurisdiction. Ownership would give municipalities the authority to regulate how the recyclables and other components of the ICI waste stream are collected and where they can be sent for disposal recycling. (p.22)

MacViro Consultants Inc. (Prepared for the Waste Reduction Office, Ontario Ministry of the Environment.) Report on Investigations of Waste Audit Procedures and Mechanisms. March, 1992.

The purpose of this report is to assess existing resources for providing waste audit services in the GTA. (p.i)

The barriers for ICI generators in conducting waste audits are identified.

The findings are based on surveys of consultants and haulers active in providing waste audit services - not municipal waste audit services.

The sectors reviewed included: construction, demolition, education, food service, residential care, hotel/motel, manufacturing, office and retail.

As outlined in the Summary, some of the key findings are:

"There is sufficient capacity within the GTA to meet the demand for waste audits provided this demand materializes in a staged manner. The majority of the IC&I sector organizations surveyed indicated that they had conducted, or were planning to conduct, a waste audit using in-house resources. For organizations requiring outside assistance, there is an adequate pool of resources available from consultants and haulers." (p.i)

"The waste audit service provided by haulers differ from those provided by consultants. Haulers can provide efficient estimates of waste quantities but, given the nature of their business, their waste diversion plans may be more focused on recycling instead of source reduction. The services provided by consultants are considerably more costly than those provided by haulers and the plans produced are generally more comprehensive." (p.i)

"There is a need for training to help IC&I sector organizations undertake their own waste audits and develop their own waste reduction action plans. Training resources should be sector specific and may include seminars, "How To" videos and other supporting materials. None of the organizations surveyed cited stand-alone manuals as a desired source of assistance." (p.ii)

"Some IC&I sector organizations are not aware of the benefits to be realized from conducting waste audits and developing waste reduction action plans on the basis of sound audit information. This constraint can be addressed by producing and distributing a number of sector-specific case studies on waste diversion successes." (p.ii)

MacViro Consultants Ltd. (Prepared for Waste Reduction Office, Ministry of the Environment). Report on a Strategy for the Management of Household Hazardous Wastes in the Greater Toronto Area. September, 1991.

This report, an evaluation of the various Regional programs, indicated a correlation between expenditure on promotion and participation rates." (p.4-9).

Findings on expenditures included:

"Current expenditures on promotion are in the range of \$0.10 to \$0.35 per household (averaging 5% of overall program costs) with 5% to 30% of target households participating. In order to increase participation, consideration could be given to increasing promotional expenditures to say, \$0.50 to \$1.00 per household (10% - 15% of overall program costs)." (p.4-9)

McDonald, D. and Vopni, P. Overcoming Barriers to Large-Scale Diversion of Municipal Solid Waste. Local Environmental Initiatives. Toronto, 1992.

This report discusses the problem of overcoming the barriers to large-scale diversion of municipal solid waste in very general terms in North America and Europe. Primarily, the report makes broadly-based policy recommendations and does not address residential or private sector attitudes or behaviour.

The following barriers are noted.

1. The Need to Augment Municipal Authority

This recognizes that Municipal authorities do not have all the legal powers needed to do the job. This is in the areas of both "Flow Control" and "Financial Control." Flow Control is defined as, "the power to control movement of wastes, re-usable products and recyclable materials from the point of initial separation by the waste disposer to such ultimate destinations as input for a manufacturing process or as another piece of trash sitting in a sanitary landfill." Financial control is defined as, "the power to set the rates charged for collection and disposal."

2. The Need to Review Internal Administrative Responsibilities

The new job of waste management has been handed over to Public Works and Engineering Departments who are not presently capable of handling the

complexities of the problem.

3. The Need for New External Liaison Mechanisms

There will always be a need for co-operation and strong relations between municipal government and the variety of private sector interests and senior government.

4. The Need to More Clearly Identify Roles and Responsibilities of All Parties

There is also a general review of waste reduction and reuse policies and practices and also of markets for recyclables.

Poole, Terry. Participation in Residential Curbside Waste Reduction Programs. Resource Recycling. 11 (10), 1992.

The author argues that in his twenty years professional experience (currently, as a consultant specializing in waste reduction program measurement), public behaviour has not necessarily matched public opinion regarding recycling. It is noted that though surveys have measured public support of recycling at, "around 85 to 95 percent...public behaviour is not as strongly correlated to attitudes" (p.46).

This study involved a five year, two hundred curbside program audit for recycling programs in British Columbia, Manitoba, Ontario and Quebec.

Two hundred households were arbitrarily selected "whose material set outs (were) measured by incidence and weight at the curb for a minimum of six consecutive weeks" (p.46). At the same time, the households were interviewed in order to draw the links between opinion and actual behaviour.

The study noted that after six weeks there was no meaningful change in the typical monitored residential weekly set-out rate, "the average set-out weight of these materials per household per week or the total net percentage of households that had set out materials one or more times during a given consecutive six-week period" (p.46).

The study found that about 18% of residences set out materials every week. Only 8% set out materials at any other regular rate. Twenty four percent set out materials recurrently but not predictably. Very active residences were measured at about 50%.

The interview component of the study asked "Why should people participate in municipal waste reduction programs?" Generally, the 50% of respondents who were not very active participants stated environmental or conservation reasons for participation. However these answers were vaguely emotional responses rather than rational, educated answers - e.g., recycling to "save the planet." Those who were measured as very active participants cited more rudimentary reasoning - e.g., "we are simply producing too much waste and we are running out of places to put it" (p.51).

It was noted that the achievement of recycling is dependent in part on scheduling and program process. More important are those who recognize the need for waste management and waste reduction. Less active participants regard recycling as another method of waste disposal, rather than as a waste management/reduction plan. The study demonstrated that these people do not understand the effect of separating aluminum cans from glass bottles in preventing environmental degeneration. And, the author hypothesizes that motivating the less active participants will lead to greater public cooperation.

Resource Integration Systems Ltd. (Prepared for the Recycling Advisory Committee). Generator Pay Systems for Households. April, 1990.

The executive summary addresses the majority of the key issues.

"In recognition of the fact that there is no direct economic incentive for people to recycle more and discard less, the Recycling Advisory Committee has commissioned this report to study the various generator pay systems that presently exist. The main purpose of this study therefore is to assess the impact of these systems on waste generation rates and to determine their potential transfer to Ontario." (p.i)

"According to the Ontario Municipal Act, municipalities in this Province do not have the authority to implement generator pay systems. While this finding should be confirmed with legal assistance from the Province, it is apparent that municipalities must pay for waste management costs from their general property tax revenues. The Municipality of Metropolitan Toronto is attempting to amend their own Act to allow them to introduce user fee systems." (p.i)

"The number of communities that have both generator pay systems and curbside recycling collection programs is limited to nine and these are all in

the United States. Recent legislation in the U.S. (Minnesota, New Jersey and Florida for example) suggests that number will increase in the near future." (p.i)

"One of the most effective generator pay systems involves standardized marked bags where residents buy the bags from local retail stores for a fixed price. Sanitation crews are instructed to pick up only that garbage set out in the paid for bags. The bag price often covers the costs of collection and disposal but typically does not include the "hidden" costs of solid waste management." (p.i)

"The major issues associated with generator pay systems are illegal dumping, overstuffing of containers or bags and open burning. The severity of these problems varies from community to community; however, each of the programs surveyed indicated that with proper public education and some enforcement these problems could be overcome" (p.i)

"Some program operators were prepared to claim that high material recycling rates could be attributed to the introduction of generator pay systems. While it is reasonable to suggest that such systems will have some impact on recovery levels, there are numerous other factors that must be considered including whether the program has mandatory participation, improved collection systems or newly provided containers, etc." (p.i)

"With a generator pay system in place, residents in the communities surveyed have found that they are paying less for the collection and disposal of their refuse than before. In many cases the municipality itself has saved money, particularly where a financially self-supporting agency or utility has been established as in Seattle. In many communities, however, various administrative changes may be required to accommodate newly adopted generator pay systems (although it is difficult to determine what the cost of those changes might be).

"Many municipalities in Ontario already have restrictions on the number of bags or the weight of refuse that they will pick up from households. What often happens to such municipal by-laws is that they are ignored by the collection crews either out of ignorance of the volume restriction in the first place, out of a sense of goodwill or good public relations, or because it is just as easy to pick up seven bags as six. The by-law is simply not enforced. In such situations, residents have adopted a no-limit attitude." (p.33)

Resource Integration Systems Ltd. (RIS). Communities Weigh User-Pay Pick-Up System. Ontario Recycling Update. June, 1991.

Robert Sinclair of RIS thinks generator pay schemes are workable in small communities in Ontario.

High tipping fees are seen as an imbalance against commercial customers.

According to RIS, five steps are needed before Generator-Pay could be implemented:

- Determining the true cost of waste management and publicizing it;
- Developing a promotional strategy;
- Separating the cost of waste management on the municipal tax bill;
- Establishing opportunities for households to recycle or reduce; and,
- Focusing public relations on how each household impacts the total waste system.

Thivierge, Marc. Gananoque's Experience With User Pay Waste Disposal. In Destination Elimination: An Economic View. Recycling Council of Ontario - 13th Annual Conference. Oct. 7-9, 1992. Ottawa (Partial Proceedings).

This was the first full user-pay program in Ontario, which began on July 1, 1991.

- Has resulted in estimated 45% reduction in Gananoque waste generation rates.
- In combination with an incentive program for recycling, over 20% of the Town's waste stream is presently being recovered, resulting in savings in excess of \$125,000 in the first year alone.
- Made a point of informing the public that they were no longer paying municipal taxes for waste disposal - funds are collected through Bag Tag sales (\$1.00 ea). There has been very little public comment.
- Did encounter problems with illegal dumping and fly dumping at first.
- One free garbage tag was given to every person who brought 2 bushels of recyclables to the depot. This proved very successful, leading to great increases in the amount of material recycled.

- Program also had a significant positive effect on the number of people who are composting.
- Instituted once-a-week pick-up of recyclables for the elderly and handicapped.
- Garbage tag sales provide 55-60% of waste disposal revenues.

Problems

- Although not considered a serious problem, garbage is still being dumped illegally.
- Some people were storing garbage on their properties and had to be informed that they were violating the Property Standards By-Laws. Eventually, the Town had to toughen the by-law to allow the municipality, "to do everything practicable to prevent, eliminate, and ameliorate the adverse effects and restore the natural environment." [Previously, the by-law provided only for daily fines]
- There has been some counterfeiting of garbage tags.
- A problem with people tearing the tags in two (difficult to tell if tag was whole or not). It was very time consuming to check and enforce compliance, i.e., check and leave bag behind. The Town is considering various options such as round tags, different bags etc.

7.0 Mandatory Enforcement of 3R's Programs

The Staff of Biocycle (Journal). Enforcing Marketing Ordinances. In The Biocycle Guide To Collecting, Processing and Marketing Recyclables. The J.G. Press, Inc. Emmaus, Pennsylvania. 1990.

Argues that it is generally recognized that mandatory recycling ordinances will increase program participation. For example, Islip N.Y. has a mandatory recycling program which was initiated in the early 1980's. Through the decade, the number of participants declined from about 50% to 30% in 1987. After upgrading of the enforcement efforts to increase participation, the level rose to the 90-95% level.

[inspectors actually physically check bags to ensure compliance].

Re: IC&I recycling - e.g., Hanover, N.J. - companies are required to file quarterly recycling reports and inspectors undertake site visits when reports are not filed on time. For larger jurisdictions, inspectors are placed at landfills and transfer stations to inspect what comes in. Some towns in N.J. have hired full-time recycling enforcement officers.

Paper offers the following guidelines on ordinances:

- 1) There should be a heavy emphasis on education and a "stepped" approach to enforcement, e.g., education - warnings - charges. The first warning, for example, might just involve leaving the garbage behind with a note attached to it. Generally, the procedure seems to be: note on trash container; mailed letter; certified letter; summons. Islip, N.Y. has only got to the summons stage twice from 1983-90.
- 2) Re: commercial enforcement: paper suggests a couple of different approaches: 1) ask health officials, as part of their regular inspections, to look at a firm's trash system. 2) refuse to let haulers unload trash unless recyclables are taken out, leaving it to them to let their customers know.

In conclusion, the authors note that 6 U.S. municipalities which have made conscious decisions to monitor and enforce mandatory ordinances have participation rates of at least 85%, but mostly in the 90% or higher range.

The Staff of Biocycle (Journal). Drafting A Mandatory Recycling Ordinance. In The Biocycle Guide To Collecting, Processing and Marketing Recyclables. The J.G. Press, Inc. Emmaus, Pennsylvania. 1990

Paper argues that in the U.S., "...a municipality's very power to adopt a mandatory recycling ordinance depends upon the existence of some state legislation authorizing the municipality to do so." (p.63).

They present a number of points/issues which have to be considered in drafting mandatory recycling legislation. These include (with the input and advice from various stakeholders): 1) the existence of markets. 2) types of recyclables generated in the community. 3) Public acceptability and education. 4) Availability of funding. 5) Existing recycling programs. 6) Structure of the solid waste collection and disposal industry.

The paper notes that in the U.S. many municipalities have established Planning Groups to develop the structure of the recycling programs and,..."the basic structure of the program will, in turn, determine the majority of the operative terms of the ordinance." (p.63).

Larger Issues/Questions to Consider

1. What is the municipality's legal authority and responsibilities with respect to recycling, e.g., is it required by Provincial law?
2. Who will be subject to the requirements of the ordinance?
3. Which materials will be the subject of the ordinance?
4. How will the recycled materials be picked up?
5. How will the program be financed?
6. Who will be the party or parties responsible for implementing and enforcing the program? (pp.63-64).

SCHEDULE G

List of Contacts

SCHEDULE G

LIST OF CONTACTS

Regional 3Rs Contacts:

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2. Peel Region
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Public Works & Waste Management Reduction, April 16, 1993
3. Halton Region
Vic Lesnicki, Public Works: Manager, Waste Reduction
Art Mercer, Waste Reduction Coordinator
April 19, 1993
4. Metro Toronto
Andy Pollock, Public Works Manager, Waste Reduction and Planning
April 19, 1993
5. Region of York
Jeff Flewelling, Waste Management Engineer,
Environmental Services Department, April 15, 1993

IC&I Organization Contacts:

1. Ontario Restaurant Association
Constance Wrigley, Manager of Municipal Government Affairs
April 23, 1993
2. The Board of Trade of Metropolitan Toronto
Rosemary Colucci, Environmental Portfolio (Volunteer Position)
April 23, 1993

3. The Packaging Association of Canada
Larry Dvorkin, Government Affairs Liaison
April 26, 1993
4. Canadian Federation of Independent Businesses
Ted Mallet, Senior Economist, April 28, 1993
5. The Toronto Board of Education
Mieke Foster, Recycling Coordinator
April 29, 1993
6. Toronto Construction Association
Paul Lasanti, Member
April 29, 1993
7. Canadian Council of Grocery Distributors
Arlene Lannon, Environmental Affairs
May 22, 1993

Facility Operator Contacts:

1. Region of Durham Recycling Centre (MRF)
Peter Watson, Public Works, Region of Durham
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2. Township of Pittsburgh Compost Facility (Leaf and Yard Waste)
John Rhodes
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3. Region of Ottawa-Carleton HHW Depot (Permanent Depot)
Phil Lefebvre, Solid Waste Engineer
April 6, 1993
4. Scott's Composting Farm (IC&I Composting Facility)
Jim Scott, Owner
April 6, 1993

5. Wright County Compost Facility (U.S.A.)
(Mixed Waste Processing)
Chuck Davis, Solid Waste Office
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6. City of Scarborough Composting Facility (Leaf and Yard Waste Facility)
Debra Dale, John Minor & Ian John Ashton,
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7. Waste Management Inc. (IC&I Dry Recyclable Facility)
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8. City of Mississauga Pilot Compost Facility (Wet/Dry)
Jim Cuthill, Harmony Planning Consultants
Paul Taylor, Compost Management Inc.
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9. Metro Commissioners St. MRF (Blue Box MRF)
Bob Sawyer, Public Works
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10. Metro Toronto Avondale Leaf Composting Area (Leaf and Yard Waste)
Caesar Corvinelli
April 14, 1993
11. Metro Toronto Dufferin Compost Facility
(In-vessel Leaf, Yard and Organic Waste)
Bob Sawyer, Public Works
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12. City of Sarnia Compost Facility (Leaves, lawn and Yard Waste)
Ken McKenzie
April 15, 1993
13. Reidel Corporation (City of Portland Mixed Waste Processing)
Jeep Reid, City of Portland, Project Engineer

April 15, 1993

14. Region of Halton Wet/Dry Compost Pilot (Wet/Dry)
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15. Hensall Composting Facility (Grain Screening Waste)
Mark Jacobs, LH Resource Management
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4. Lou Pagano
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5. Jenny Bagby
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April 7, 1993
8. Jutta Siebel
City of Guelph Wet/Dry Pilot Project
March 29, 1993
9. Bruce Reid/Doug Sirrs
General Motors of Canada Ltd.
GM Autoplex Facility
April 1, 1993
10. Ken Mulhall
National Grocers Co. Ltd.
April 19, 1993
11. Andy Pollock
Metro Toronto Works Dept.

